FINDING A FUTURE FOR THE PAST

By: Jenn Whitney
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Finding a Future for the Past

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By

Jenn Whitney

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Finding a Future for the Past

This work addresses the uses of space within a building over time. Through the years, needs of spaces evolve and require changes. Often, buildings are left vacant once they no longer function for their desired needs. Economic hardships also add to this occurrence. This work gives the designer the challenge of reusing spaces that have lost their original function and are left in a state of desolation.

The theoretical premise of this thesis is sought through exploration of human needs and their well-being. The designer then obtains a better understanding of the function of spaces needed.

The site is in southwest North Dakota, a small town of 150 people known as Marmarth. The town’s main street beholds strong Architectural character and is begging to be revived. Through an adaptive reuse and restoration project with new construction, the original downtown can be reinvented. The existing 1st National Bank and Barber Auditorium is 20,500 GSF and the new construction with the atrium will be 18,000 GSF. The spaces will lend to the community while attracting tourists to the area. With an understanding of time, space, and place, a more sustaining design can result, creating a place for past building’s spaces in the present and future.
Problem Statement

How can architects address the changing use of space within a building over time?
Typology.

Adaptive Reuse and Restoration

Theoretical Premise/Unifying Idea.

Architects can address the changes in the use of space over time by exploring the needs of individuals. A designer has the ability to understand space. By addressing change, designers adapt to the necessary needs of an individual and a space. Over time, the needs of a space evolve. Through reusing spaces, a new approach to sustaining the design environment results.

Through careful investigation of why a building lost its original use the first time and fell into desolation, the architect can obtain a better understanding of the needs of a community to establish a new use of the space. Architects can use their understanding of sense of space, sense of place, and changing needs of individuals to address the evolving needs of spaces over time.

Project Justification.

The reuse of buildings is important because it addresses the changing uses of space over time. By understanding the user’s needs in relation to spaces to be created, the designer can create a more meaningful and sustaining design. Reuse of buildings sparks interest in the designer as they seek the different pieces to the correct solution.
Designers create works which embody their unique details every day. Each design is inspired to be unique to the onlooker. But with time, the designer leaves their works in the dust. A building is celebrated when it is brand new, yet after 10, 25, 50, or 100 years it begins to lose its luminosity and sense of intrigue to the onlooker. Once its variable function is no longer met or the funds to maintain the structure diminish, a building is left to age. With each battle fought, a building left to fight alone will lose the battle over time and will be left in a state of desolation to whither away. It is necessary to learn from weathering, technologies, and needs of the space as they evolve.

Often, people pass by these withering structures, watching them continue in their state of deterioration. With the glimpse of inspiration, a designer can grasp this as an opportunity for inspiration. A potential to be fulfilled as a reusable structure and a revitalized design. The designer must investigate why a building struggled to survive in order to give it a chance at success a second time.

The town of Marmarth, North Dakota, has been left to fend for itself and its historic main street has slowly fallen to ruins. In the early 1900s Marmarth was the connection between the Rocky Mountains and the Twin Cities. Once known for its railroad connections, it is now known for the beautiful badlands and its steak house.

This project’s focus is on the town’s historic downtown and its revival. More specifically, the Barber Auditorium and 1st National Bank will be adapted into a brewery and research facility for paleontologists and a hub for the Marmarth Historical Society. Also, an expansion to the northeast for an Inn will be connected to the Brewery.

By finding the needs of the people in the community, a more meaningful and functional spatial layout can be obtained. Discovering people’s needs will result in an embodied sense of space. By performing specific investigations and taking consideration for people, a place for the past can be found in the present, personifying time.
The user of the project will be the community members and visitors of the community of Marmarth, N.D. The program will include spaces to host social events and an Inn to cater to the visitors. A brewery will be implemented in order to create an attraction to visitors. In the First National Bank building, an office space will be created for the Marmarth Historical Society. It will be used to do research and display information for the public about Marmarth’s history. It will also have other office spaces for paleontologists to perform research who visit Marmarth to excavate dinosaur bones. Also, it will include spaces to store excavated materials and space to work with them.

The intention of this is to create a tourist hotspot. The Marmarth Historical Society owns the Barber Auditorium and the lots to the north of it which once housed the Woods Hotel. These lots will become part of the expansion of the Barber Auditorium and again host an Inn. Due to non-profit regulations, all profits will go directly to the improvement of the town of Marmarth.

It will take a lot of work to get the building up and running, but with volunteered help from the community of Marmarth, it will go more smoothly. With success, the town could someday be back to its original historical context as the area is being sought for its natural resources.
The essential focus of this thesis is to restore and rejuvenate the historic, abandoned Barber Auditorium and First National Bank building in Marmarth, North Dakota. Also, plans to develop the lots to the northeast of the building will bring life back to the once booming Main Street. In order to obtain this focus, specific research must be done for the elements of the project.

**Barber Auditorium.**

*Theatre/Auditorium.*
This space will inhabit the original intent of the old theater: A place to entertain, display of original artworks, and to hold public gatherings and ceremonies such as weddings and other community events.

*Brewery/Bistro.*
The lower level will inhabit a brewery in the space, with exposed canisters. It will include a small bistro for appetizers and small meals. [In order to not detract from business at the local steak house].

**Gathering Space.**
A multi-use space will be established throughout the main level. It will leave space to host meetings, small parties, and other social events.

**Public Dining Space.**
On the main level there will be seating to be utilized by the brewery and bistro. This space will multi-task as the ‘gathering space’.
First National Bank.

Offices.
The main level of the building will host the Marmarth Historical Society. It will have office spaces for the volunteers and give them a meeting place, along with spaces to display historical elements of the town. The lower level will allow for storage along with being used for the geothermal heating/cooling system.

Research & Offices.
A small lab will be on the upper level for research for visiting paleontologists and volunteers. Also, it will allow fossils to be placed en route to the Prairie Trails Museum in Bowman, North Dakota. The main level will host offices to be used by paleontologists and leaves the flexibility to be transformed into a new location for the post office in the future.

Woods Inn.

Guest Rooms.
The Woods Inn will be a new construction on the lot directly northeast of the Barber Auditorium. It will become interconnected with the Barber Auditorium’s Brewery on the Main Level. The key focus will be the rooms. Each room will follow a historic theme of the area.
Site Information

figure 0
Relationship to Theodore Roosevelt National Park
Macro Location
Region: Upper Midwest
City: Marmarth, North Dakota
Site: Main Street & Highway 12

Micro Location
The site is important due to its historical meaning to the community. The structure has been on the site since its original erection. The site is surrounded by empty lots that once hosted other buildings which are now gone. Across the street to the southwest, future plans are in store to move the original hospital on to the site. In time, Main Street will have its historical context so that it is close to its authentic self.

Site: 13,500 square feet

Downtown District
Historic Site
The emphasis of this project is to revive a community that has fallen off the map due to economic hardships. The reason people are brought to Marmarth now is because of a small steak house known by the Food Network, dinosaur digging excursions, and the scenic badlands. In order to bring life back to this community, investigation of the changes of space over time through exploration of the users of the community will need to occur. Through this investigation, the designer understands the needs of a space as they evolve and the needs of the people in order to specify uses of the spaces.

Importance is placed upon reviving the once lively historic buildings into usable spaces; creating a sense of space for the users and visitors of the community. Bringing life back to the spaces will require research of restoration and adaptive reuse methods. This in turn will result in an understanding of a building’s ability to adapt over time.

A phasing will need to take place in order to grant success to the project. New construction to the north of the Barber Auditorium will house the rooms of the Inn which embody what was originally on the site.
Plan for Proceeding

Definition of a Research Direction.

Throughout this thesis, a breadth of research topics will be investigated. Some areas include: historical context, restoration methods, time and buildings aging, sense of space, case studies related to the project typology, and site analysis. As the project moves forward, more accurate programming will be established with a closer look at the Unifying Idea.

Design Methodology.

I plan to use the mixed method quantitative/qualitative analysis method and the graphic analysis method in order to establish a successful project. Through multiple site visits I feel I can establish a stronger sense of connection to the community and the inherent needs of the site.

Through interviewing different individuals of the community, specifically the Historical Society, I can get a better understanding of the needs of the people. This will establish a more successful program along with embodied spaces to create a sense of place.

Several methods of graphic analysis will take place, including computer simulations in order to understand spatial layouts and circulation through the spaces. Digital images, hand sketches, and models will be necessary for a stronger depiction of the process.

Plan for Documentation.

I will keep all of my documents organized and backed up, keeping importance on documentation of process. I plan to have several binders to document my work, varying from 2-3 weeks, and will have elements of sketches, research, photographs, and other portrayals of the design phase.
2ND YEAR.

FALL 2006: JOAN VORDERBRUGGEN
Tea House
Mississippi River Rowing Club Boathouse
Sustainable Dwelling

SPRING 2007: DARRYL BOOKER
Montessori School
Prairie Dance Academy

3RD YEAR.

FALL 2007: RON RAMSAY
Agincourt Golf Course Clubhouse
Agincourt Bandstand
Stone Barn

SPRING 2008: STEVE MARTENS
Fargo Children’s Museum
Marmarth Dinosaur Research Center

4TH YEAR.

FALL 2008: DARRYL BOOKER
San Francisco High Rise
KKE Design Competition

SPRING 2009: FRANK KRATKY
3rd World Urban Design
Marvin Windows School

5TH YEAR.

FALL 2009: REGIN SCHWAEN
Fargo Airport Hotel
Theoretical Premise

Well-being of Individuals.

As a designer, we have set guidelines to understand the user and client to grant a project’s success. Knowing the needs of a space is key to any programmatic planning.

Once we have done thorough research of the individual’s needs, we obtain a greater sense of understanding of a space’s requirements. Knowing the expectations of the client along with a predictive understanding of the user’s needs, the designer is able to mold the experience of the space. This knowledge becomes a key component to every design, allowing the designer to take their refined set of skills and apply them to the direct needs of the space’s typology.

Understanding Spaces

When dealing with the adaptive reuse of a building, it is essential to grasp the original essence of the space. Each space was given a significant meaning when planned out. Originally, even with an area being in absolute disrepair, architectural qualities are still intact. These details shape the space and inform the experiences at hand. Whether the detail is a tall vaulted ceiling, exposed trusswork, or a unique layout, it is important to embody these original details. This establishes a level of respect for the space.

Transforming the use of a space can be done successfully while keeping the historic features intact. This is important because it has the ability to retain the pride the community holds for the structure. It allows memories to come alive while enabling the possibility for new memories to be made.
Addressing Change.

One of the most difficult concepts for an individual to grasp is change. An ancient proverb say ‘change is the only constant.’ This is true for almost everything, especially architecture and the built environment. Change is one of the most important pieces to the design puzzle, yet, is often left out.

When designers add change to the design equation, it establishes grounds for a structure to have a presence in the built environment. It leaves room for the new designs to become an integral piece of history.

To address change, designers must be creative in order to design for adaptability of spaces, allowing designs to conform to new technologies and regulations that come about over time. Also, special consideration of the material’s durability over time will play a special role in the building’s overall composition.

A study of what the design will be in 10, 25, 50, or 100 years can give the designer a better understanding of the impact change has on the built environment. This is especially true when considering weathering and the ability of a building to be self-sustaining to the destructive properties of the weathering environment.

New technologies are being invented to provide studies of time. One program, Revit Architecture, is currently being redesigned for the consideration of the 4th element of design--time. Through this integration, change can be addressed early on in a project, making the project more sustainable over time.

In Consideration of the Barber Auditorium, many possibilities of change remain. Transforming spaces into the needs of a community or an owner generally regulate change of a space. The ability to transform the lower levels into various functionalities remains.
Adapting to Needs.

In an adaptive reuse project, often the building at hand has failed to meet its original function and has fallen into a state of destruction. The general reason for this being because the structure fell under influence of economic hardships and was unable to adapt to needs of a community. At times, it cannot be prevented. People struggle to adapt a building into a different need if there is not a plausible argument or funding at hand to transform the building’s function into something different.

In order for a building to successfully adapt to the needs of a community once again, careful investigation must first be done to evaluate what the needs or demands of the community entail. Once a legitimate function can be established, the project has a foundation to be reused and adapted into a new project.

The needs of a space change over time as new technologies arise, and old ones are replaced. The unfortunate factor of technology is it will always require money to be integrated in structures. This is often the largest challenge for building owners because once their building has failed to follow the trends of technology, it becomes almost impossible to keep up with the pace of their competition. This, in turn, puts the building into the past.

The people of the community, owner, and the user of the space’s needs become the key components to the project’s success. Through investigation of the needs of the occupants, a more successful program can result. This, in turn, will lead a more promising future for the project.
**Time.**

Time is an inherent property of the built environment. It is an element of change that will undeniably affect a building. Time ultimately leads to aging. Designers cannot fight time, we can only work with it. Often, attempting a level of equilibrium. A successful designer may attempt buildings which embody a ‘timeless essence.’ arguing that the structure is able to sustain over time and fit into its surroundings successfully.

This ‘timeless essence’ becomes a vital role in adaptive reuse and restoration projects. To inhabit a structure with powerful historic significance can become the largest hurdle in a project. With any added structures surrounding an original building, a challenge of matching its context arises. The next difficult endeavor for the designer is to create ‘new’ in an area of old.

A building’s ability to adapt as it ages is often what results in the building’s success. A building is forced to learn from the occupants as they learn from it. Eventually, a significant bond is formed between the occupants and the structure (Grand, 1991).

Buildings are often seen as the “custodians of memory” (2004). The capacity of Architecture to create memories in a physical form is empowering for users. The site where the memory occurred becomes another key part of the process. With a site and a building creating lasting visuals for memories, a larger sense of pride is embodied as the places age (Yacobi, 2004, p. 248).

Landscapes and buildings already standing are components which formulate the process of our everyday lives. Over time, these structures ignite memories, defining them as the level of importance in one’s life.
Theoretical Premise

Sense of Space & Place.

Often, one of the most argued topics amongst professions is the ability to distinguish a sense of place or a sense of space. It becomes a topic of theory and criticism as each professional obtains their own unique understanding of the topic.

Creating a space happens every day, but creating a space with meaning takes progress. Spaces which embody poetics often are given credit to the most meaningful spaces.

Three types of spaces exist: perceived, conceived, and lived. Distinguishing the relationships between these three types of spaces establish grounds for more firm arguments as to whether or not a space can embody a place. Perceived space is physical matter surrounding us which is often defined by the objects that distinguish spaces. Conceived space is the manner in which various professionals choose to represent space. Conceived space is what every architect attempts to create in their design work and what every professor inspires its students to do. Lived space “embodies images, symbols, and associative ideas of the ‘users’ that give meaning to space” (Yacobi, 2004, p. 6).

No matter what one does, or where they go, they will never be free from the restraints of space. Spaces differ in place by available and occupied space. A living being gives itself towards available space of an internal space. Time is the key factor lending to the decline of space. Spaces never entirely disappear, they leave remannts behind. This is why it becomes an opportunity for designers to attempt the creation of meaningful spaces. Simultaneously arousing emotion from the user and creating a level of excitement and inspiration to the onlooker (Lefebvre, 1974).

Theories of distinguishing a sense of space from a sense of place became popular in the 1970s, “when a qualitative shift in the field of geography paved the road to the development of social and cultural geography” (Yacobi, 2004, p. 5). Places are given dimension from space and individual experience is sought through individuality. A sense of “oneness” (1998) is the ultimate goal for the designer, creating a space with the same essence to every user. The state of “oneness” (1998) is easily ignored by the everyday user (Tuan, 1998, p. 95).
Sense of Space & Place

Spaces are generally created by materials whereas places are given a specific location defined by spaces. Materials, where to build, and the form taken on are all factors which create the experience of a space. These created spaces result in a place for the user. The dimensions are defined by vertical and horizontal measures along with mass and volume of the space. Establishing a meaningful space can result in an improved experience by the user (Tuan, 1977).

In order for this experience to occur, special consideration must be taken of the user and the function of the space. Knowing the demands of the space’s needs results in a creative process of inhabiting a dynamic experience like none other. It gives a challenge to the designer to attempt a design that has not been done before.

Space is often described as a “container of material objects” (Yacobi, 2004) whereas ‘place’ is “not an abstract, but an experienced phenomenon linked to a process which involves the perception of objects and activities that are used as sources of personal and collective identities” (Yacobi, 2004, p. 5).

With adaptive reuse projects, the space embodies a separate experience to previous users. The pressure of establishing a new successful experience to the user becomes apparent. The changing needs will create different demands of the space, but in order for a new distinct experience to occur, a designer must embody the past with new technologies.

A sense of place exists solely because of a space that is already existing. The experiences within spaces often define a place. Whether the experiences are between society, culture, space, or economy, the occurrence generates a meaningful relationship between the user and the space. Space is often the connection between subjects and the place. The relationships created in these spaces result in a space being given a place in the user’s mind, and with repetition, a place in time (Yacobi, 2004). A sense of place is created over time by humans and their experiences. This is often derived from an existing object and space--given definition by unusual compositions, whether they be natural or unnatural in formation (Jackson, 1994).
Theoretical Premise

Sense of Space & Place.

The sense of space creates a link between places and the user. A space is made memorable via planned or naturally occurring events within the space which result in unique experiences by each user. Defining meaningful spaces becomes complicated because each user will have personal bias to their own specific experiences (Yacobi, 2004).

Questions of the difference in space and place become a popular ground of debate because the terms are used interchangeably. Professionals find it a fine detail to focus on and criticize amongst one another. Often, the professional’s opinions are easily skewed due to personal beliefs based on their own findings.

It has been argued that place differs from space because of the disconnect of being inside a space and experiencing its heart beat versus being outside or inside the structure and knowing where one is beyond the surroundings.

Giving cultural character to a space’s material establishes identity to the space in its geographical location. From the exterior of a space, a new space is formed, defined by landscapes and surrounding structures. It becomes a challenge to embody the differing spaces of a surrounding in order to establish a meaningful space both with the shell of a building and in the interior. This will likely create a space that will have meaning to the user and allow for memories to develop.

Making sure buildings are specific to a site and can’t be placed anywhere in the world is inherent. In adaptive reuse and restoration projects this is accomplished by research of the original placement of structures; giving a new space a specific designation with its location; creating a place for the present through previous placement.

The creation of places is never ending. Each place is determined by the user. Same spaces can embody a different place defined by another individual’s bias (Yacobi, 2004).


Sense of Space & Place.

It is impossible to address place without consideration of space. Place is composed socially, understood from a wider perspective of spaces. When a place has any meaning, it is then given “a sense of place” (Yacobí, 2004, p. 121).

The process of defining meaningful places often becomes emotional. It involves a level of interaction between people in order to establish an experience, giving it meaning. Every person will sense a space differently. In order to establish unity, a level of understanding must be established.

A sense of place specific to a group of people formed by a specific space will never remain constant. Similar to the changing environment and the adapting built world, a place will always evolve. Original inhabitants may have a difficult time with the change of places over time. Whether it is a physical transformation, or merely a social interaction, the experience of a place will be changed.

When spaces fall barren, no choice remains but to create a new place. These changes can be hard for original inhabitants to grasp. The ideas of reusing a space for a new function can lead to frustration to those who need to adapt. Unfortunately, this becomes essential for the space to obtain a place in history and not be tore down.

Community.

Community is the number one success to a town. It takes pride and a desire to inhabit a place, even after it has been determined to be abandoned or a ghost town.

With the support of a community, a building reuse project becomes a success. It takes the commitment and support of the community to become the backbone of a project. The community then gives the past a place in the future through each reasonable decision.
Summary

Steward Grand wrote, “Growth follows a simple goal--maximize what you control” (Grand, 1991, p. 20).

Often, we have control over many things, from material choice to spatial layouts and programming. Grand writes about the concept of furniture and objects within a space will “change radically” (1991) whereas the exteriors of buildings “maintain continuity” (Grand, 1991, p. 21). This theory relates to the methodology of adaptive reuse projects by the manner designers reuse a shell of a space and only transform the interior spaces.

Grand writes about aging buildings and their ability to adapt, creating beauty within the project. The building essentially becomes a mirror over time, reflecting what the occupants wish to see. Whereas the occupants can learn simultaneously from the spaces surrounding them (Grand, 1991).

Buildings left in ruins that have hit rock bottom often become a “palette of inspiration” (1991) for the onlooker to reuse as another purpose (Grand, 1991, p. 24). A designer is given the freedom of open space to give an existing scene a new opportunity with a new set, receiving a once joyous space to again withhold an experience of unique space and a culturally intact place.

Space specific to the occupants results with special consideration to the user and the client. Giving a lively environment for those to inhabit and enjoy.

When a designer tackles an adaptive reuse and restoration project it is necessary to “ensure we look at where we have been and where we are going” (2000) to result in success (Tyler, 2000, p. 15).
Summary continued.

The designer evolves with each step taken in the design process towards creating spaces to embody a meaningful experience to the user. Knowing that each user will have a bias and a separate experience leaves the designer to tackle the challenge of creating a new space.

In an adaptive reuse project, a sense of place was already clearly embodied within the space. The original function of a space has imprinted memories in every previous user's mind. With reusing a space it is essential for the newly created space to embody a sense of the original materiality. By following the patterns of the spatial layouts a path can be found relating to previous users.

Retracing the footsteps and original intentions of the first designer is a piece of understanding the history of the building. Walking through the space in its state of desolation and ruins while finding a way to understand the importance of the previous activities which have so carefully molded the minds of a previous user, is a major point to keep in focus as plans for reuse and redevelopment progress.

Grasping the importance of a new space relating to an old place can become the biggest challenge in an adaptive project. Being able to establish new spaces that will leave a place to learn, laugh, and grow. New spaces will evolve from the current place into a space for the future.

The process of renewing spaces and enabling new experiences results by injecting life back into the downtown of Marmarth. The ability to once again embody a sense of pride within the members of the community will grant a larger success.

To understand change, time, and the process a building goes through as it ages is important in the future of the downtown scenery. Adapting the old to new standards and technologies will allow for a more sustaining design.
Museo del Acero Horno

By: Grimshaw Architects

PROJECT TYPE.
Part Adaptive-Reuse & Part New Construction

LOCATION.
Monterrey, Mexico

SIZE.
Existing Structure + Added 34,000 Square Feet

DISTINGUISHING CHARACTERISTICS OF CASE.
The complexity of the project was incredible in the first phasing of the project. There were no level surfaces inside the building. It retained much of the original history of the building, giving it a significant role to local culture.

EXISTING PROGRAM ELEMENTS.
The existing elements reused include the catwalks, original steel structure, and the furnace. Much of the existing steel had to be treated in order to preserve its “gritty aesthetic from the building’s former life” (Broome, 2008, p.99). The original designer made a unique design for the ceiling with the use of 1/2” steel plates welded in a “windmill fashion” (2008), giving the roof an appearance of an “unfurled paper fan” (2008). Grimshaw found it as a prime opportunity to install a green roof system which embodied the original design intent, retaining the triangulated fan pattern (see fig. 5 to right) (Broome, 2008, p. 99)

COMMON TO OTHER CASES.
This is a common adaptive reuse project because of the design intention to retain the historic integrity of a space. The project is turning a piece of Mexico’s history into a museum and learning center.

UNCOMMON TO OTHER CASES.
This project is unique because of its use of an industrial building, which included a 230-foot-high blast furnace. The Architect reused the furnace for a central hub to the new museum which makes for a very interesting aesthetic within the spaces. Also the steam from the building proves to be an interesting feature (see fig 6).
SITE.
The project has taken many strides forward towards environmental considerations. Once used as a burn furnace polluting the air, it is now a structure embodying the culture with many efficient systems to allow the building to work with the environment, rather than against it. The ventilated roof allows natural ventilation, along with a green roof to cool the building. The building also uses “low-flow fixtures and an ice-storage cooling system” (Broome, 2008 p. 103).

DESIGN ANALYSIS.
The structure of the project reuses the original steel, along with incorporating a “radical use of steel in the Steel Gallery” (2008). The system used was considered strong enough that no fire proofing was needed for the steel (Broome, 2008, p. 101).

With steel fabrication being an affordable solution in Mexico, unique stairs were fabricated with “bladelike” (2008) edges which were “welded to the single helical stringer, taper down to 3/4-inch at the outer edge” (2008) creating a rather fascinating display of the helical stair (Broome, 2008, p. 100). The stairs are also naturally lit through the curtainwall system that surrounds it. The original building’s geometry was kept, along with the 34,000 square foot addition for additional educational spaces.

The 230-foot blast furnace dominates the building from the exterior and becomes a key component to the central organization of the interior spaces. The new addition branches off of the furnace while the sizing of the blast furnace lends to inspiring the geometric forms of other spaces.

CONCLUSION.
This project has an important relationship to this thesis through its challenging reuse of a space. The sustainable solutions used in this project and usage of local resources creates an essential role model to adaptive reuse projects. The new space added onto the building emits the importance of a new space, adapting to existing conditions of a site and building.

**Technical drawings retrieved from Architectural Record**

Case Study 1: Museo del Acero Horno³ 33
Wing Luke Asian Museum

By: Olson Sunberg Kundig Allen

PROJECT TYPE.

LOCATION.
Seattle, Washington

SIZE.
57,000 square feet

DISTINGUISHING CHARACTERISTICS OF CASE.
This case is not defined by its architectural character, rather, the project is defined by its cultural importance to the area. This project was built by a group of 170 Chinese Americans in 1910 as a place to house Chinese laborers (Pearson, 2009).

EXISTING PROGRAM ELEMENTS.
The building has a rather simple layout with close quarters on the upper levels used for housing and commercial spaces on the lower level. By 1970, the upper level of the building was no longer to code, so the building was forced to be boarded up for about 30 years with the lower floor shops still being used (Pearson 2009).

COMMON TO OTHER CASES.
This building is common in its originality. It is a simplistic design which focused solely on its functional requirements of the time. Once the building no longer met code and funds were not available to fix the space, it followed what most buildings with the same problem do: it fell into a state of desolation and disrepair.

UNCOMMON TO OTHER CASES.
This type of building is often tore down due to its code problems and the lack of architectural significance. IF there is little pride in the building to the surrounding community, it becomes difficult for the building to survive. Due to its cultural importance, the project was saved. The building had a lot of stories to tell once the boards were removed and original portions of the building were put back into view.
SITE.
The site is downtown Seattle in the business district. The area is fueled by retail establishments. It has a cultural significance due to the history of the individuals migrating to the area and staying in the building. Through time, the building housed “waves of Chinese, Japanese, and Filipino laborers” (2009) who stayed in the building in between jobs in Alaska’s fish industry, various construction duties, and farm work (Pearson, 2009, p. 68).

DESIGN ANALYSIS.
The structure of the building was in an immense state of disrepair, but the architect working on the project wanted to embody a sense of place within the space and provide minimal interruptions. Steel crossbracing was added to the street facades (see fig. 12) along with a concrete core at the back (South) of the building and added steel beams to tie the space together running from north to south.

The architect used the original light wells of the building as a key component to the building’s reuse. Portions of the second floor were removed to install a staircase below the light wells. The steel stairs create a beautiful relationship to the entry of the building (see fig. 9 and 13).

Many restorative practices were employed to keep the originality of the building. Bricks were re-pointed, original wood frames were reused in the windows with new glass added. The terrace was also updated on the second level to create a similar relationship to the original balconies.

CONCLUSION.
This project is interesting due to its prime focus: being the cultural and historical significance to the building. Each detail planned into the restoration was to resonate an experience of the original building. The mentality of reusing every last element of the building is a great inspiration to this thesis project because it employs another mind set that will grant more successful thinking strategies for the final outcome.

figure 13

*Technical drawings retrieved from Architectural Record**
Caixaforum Madrid

By: Herzog & de Meuron

PROJECT TYPE.
Restoration & New Construction

LOCATION.
Madrid, Spain

SIZE.
100,000 square feet

DISTINGUISHING CHARACTERISTICS OF CASE.
This case is distinguished by its extreme effort to create poetic experiences in a cultural center that was once known solely as a power plant. The architect has done an act of intervention and the project has been described as a “surgical operation” (Cohn, 2008, p. 109).

EXISTING PROGRAM ELEMENTS.
The architect has gutted the structure built in 1900 to allow for freedom of design and inspiration. The designer went as far as to request an adjacent site with a gas station to be bought and redone as an entry plaza (Cohn, 2008).

COMMON TO OTHER CASES.
This project is common to other cases in the manner in which it establishes a place for a historic building in the present. It is an entirely new outlook on the methods of approaching the aging built environment.

UNCOMMON TO OTHER CASES.
The architect has looked at the material composition of the building to determine the building’s ability to fit in contextually with its surroundings. The interior spaces of the building were completely gutted as to allow a disconnect between the new and the old fragments. Oxidized Cor-Ten steel was used on the exterior of the building. Concrete was poured along the original brick walls to separate the new structure from the old, attempting to make the new structure appear to be ascending from the old structure (Cohn, 2008).
SITE.
The site is compressed and odd shaped. Streets on one side of the site are narrow and slope upward toward the site whereas the other side of the site guides visitors inward diagonally towards the spiral entry stair (see fig. 17). The courtyard pulls visitors in through its lush greenery of the vertical wall in the space (see fig. 18).

DESIGN ANALYSIS.
The original structure has been disregarded and used as a veneer surrounding the poured concrete liner that supports the new addition. Some bricks were removed to allow daylight into the new building, but, the main focus was to perform a experiment of materiality and the ability for new materials to coexist with the old. The use of oxidized steel creates a sense of tension between itself and the brick.

The new cultural center has tall ceilings with exposed beams, allowing spaces that will easily adapt to the use the cultural center finds necessary for each space. The building has 24/7 climate-control due to its gallery contents and is an environmental liability. The architects attempted some energy conservation strategies by including radiant floors and two mechanical systems in order to shorten the distance ducts and pipes would run. Solar heat gain methods are employed through the properties of the cast-iron panels and the covered entry plaza with the vertical garden lend to creating cool spaces in the summer months.

CONCLUSION.
This building relates to this thesis through the study of materials and surfaces having contextual relationships with time. This project had many solutions to learn from, including: more natural daylighting, more efficient system incorporation, and a better look at the historical integrity of the project.

This project is interesting because it looks at the importance of understanding the relationship of various materials. It also lost focus when it came to creating a sense of space and place and has a serious disconnect between interior and exterior spaces.

*Technical drawings retrieved from Architectural Record*
Gentry Library

By: Marlon Blackwell Architects

PROJECT TYPE.
Adaptive Reuse

LOCATION.
Gentry, Arkansas

SIZE.
11,970 square feet

DISTINGUISHING CHARACTERISTICS OF CASE.
This project stands out because of the community involvement and dedication to a seven-year project. The volunteering and teamwork were remarkable as time went on and the project progressed.

EXISTING PROGRAM ELEMENTS.
The existing two-story building was once a hardware store. The structural integrity of the building was in tact and an existing skylight was able to be refurbished and used again allowing optimal daylighting into the spaces (Kolleeny, 2008).

COMMON TO OTHER CASES.
This project is common to other adaptive reuse projects through the similarity of the project location being in a downtown district. Once a booming area that has now fallen to hard times and has many buildings standing empty. This project holds the typology of a brick building that is no longer to code and is in need of repair.

UNCOMMON TO OTHER CASES.
What makes this project uncommon is the community involvement in the project’s success. The architect also took a distinct interest in the project and provided a lot of services without charge, maintaining the projects cost at about $108/square foot. The project cost and time line emit an impeccable radiance of patience within a community and the ability of a project to persevere if given the opportunity.
SITE.
The lots surrounding the Gentry Library are vacant and the city has taken it into their hands to phase the project. Using the lots as a future park and outdoor space to become an integral part of the library. Currently, plans have been done for the spaces; due to budget constraints they have not been completed (Kolleeny, 2008).

DESIGN ANALYSIS.
The programming and layout of the library include a reading room, librarian office, kitchen, reading rooms, and a computer area. The historic lift was used in the detailing of the building to retain some historic character within the space (See fig. 20).

The architect removed the glass from the second story window, leaving original woodwork intact. The windows were then covered with glass projections and they act as display cases for the library (See fig. 21).

The Main Street facade was converted to a glass curtain wall in order to create a “come on in” (2008) feeling for the building (Kolleeny, 2008, p. 138).

The project’s success has been evident as 2,000 of the 2,500 residents of Gentry have library cards (Kolleeny, 2008).

CONCLUSION.
This project is important to my research because it provides evidence of a small town community that came together to create a successful reuse building project. The downtown of Gentry is relative through its strong architectural character in its empty structures.

With the support and perseverance of community members, this project became a success. The low budget in the project is also a very impressionable aspect of this project. The adaptability of a project that is successful while being frugal can give adaptive reuse projects a higher hopes for the future.
By: Various Architects

PROJECT TYPE.
Restoration

LOCATION.
Marfa, Texas

SIZE.
Downtown

DISTINGUISHING CHARACTERISTICS OF CASE.
This case is interesting because it shows how a community can take interest in restoring the entire town. The pride the community embodies in its history and its unique architecture is an inspiration to this thesis project.

EXISTING PROGRAM ELEMENTS.
The buildings in the center of the page display some of the original buildings of Marfa, Texas. Each embodies a different style of architecture known to the area. With public support and government funds, the town has slowly been restoring significant projects to the city, such as the Marfa Courthouse.

COMMON TO OTHER CASES.
This project is common to other cases as it restored original projects to give historical meaning to the community. Some projects have dedicated themselves solely to the embodiment of historical meaning.

UNCOMMON TO OTHER CASES.
This project is different to other cases by the mentality of the community members. Marfa has been described as “A tractor pace in a cybernetic nanosecond world” (Official Marfa, 2008, p.2). This quotation can be comical when one thinks of the fast paced living environment the world is currently following. Reality, being that towns that take days one at a time still exist, Marfa, T.X. being one of them.
Marfa, Texas

SITE.
Marfa is located in western Texas. It is a flat, arid place that is known for its mysterious lights (see fig. 27). Due to the open plains, the lights can be seen for quite a distance and create a sense of intrigue to the onlooker. The lights are said to spark a sense of adventure in people; their occurrences are still unexplained, even after research was performed (Official Marfa, 2008).

DESIGN ANALYSIS.
The design of this town is interesting in its historic meaning to the community. The town’s success was defined by many influences over the years, including military, movies, and mining. The town was also influenced by the Southern Pacific Railroad, Farming, Ranching, and Flight.

The town has shown each influence as it passed through the town. The mining movement brought an industrial effect to parts of Marfa, whereas the military brought in different types of personalities. With this, came artists who took inspiration from the vast openness of the area.

The artist’s original works are embodied in works of architecture throughout Marfa. Donald Judd had such a significant impact on the town that foundations have been formed after him.

CONCLUSION.
This project has an important influence on this thesis through the community pride and the prosperity of the project in economic times. The manner that another slow-paced community is still surviving despite the quick paced surrounding world becomes relevant to this project.

The widespread typologies of various buildings and the manner of phasing the town and gradually fixing historic pieces as the funds become available are both interesting tactics to a successful design. This process will play an integral part in the success of my thesis.
Fitger’s Brewery & Inn

By: Multiple Architects

PROJECT TYPE.
Renovation & New Construction

LOCATION.
Duluth, Minnesota

SIZE.
16,600 square feet

DISTINGUISHING CHARACTERISTICS OF CASE.
The distinguishing characteristic of this case is the longevity of the building’s success, considering its typology. The brewery made it throughout many economic hardships and remained in business. When the building closed its doors in 1972 due to pollution problems, they only remained closed for 12 years before reopening for public use again as a brewery.

EXISTING PROGRAM ELEMENTS.
The existing elements in this project is the building was originally used for a brewery, so the challenges faced were mostly updating the building to code and adding the restaurant and hotel spaces to make the project more successful.

COMMON TO OTHER CASES.
This project is common to other cases with the reuse of a brick building in order to give the town its historic integrity back to the area. The project’s typology remains the same, but the use of the space is unique through it both embodying history as a display while still making the building usable as its original intent.

UNCOMMON TO OTHER CASES.
Other reuse cases often completely transform the functional spaces of a building. The Fitger’s Brewery & Inn is uncommon because both its current and original use was a brewery. This project is interesting because it uses the original programmatic planning of the building while adding new functions to reinforce the building’s success.
Fitger’s Brewery & Inn

SITE.
The site adds beauty and distinction to the area. With its waterfront site, it creates a wonderful space to experience for those visiting. Whether it be for an hour or for a week, the brewery can transform a visitor’s experience of Duluth, M.N. completely.

The building was built in 1881 and has significant historical value to the site with its originality to the area. The site is close to local trails and recreational areas, which brings many visitors in for events hosted by the Fitger’s Brewery & Inn; including 5k races, biking, and snowshoeing races.

DESIGN ANALYSIS.
The original building’s history was taken into direct consideration when the building was renovated in 1984. The building was once used strictly for a brewery and with the 1984 renovation, 48 hotel rooms, a retail center, and two full service restaurants were included in the planning.

With local supporters, the project was revamped in 1995. An addition, 14 luxury suites and a lakewalk access were added.

The original smokestack displays the Fitger name, accrediting the success to the original brewmaster, August Fitger. Fitger was an original partner when the brewery opened in 1881.

CONCLUSION.
This project will play a key role in this thesis through the use of the typology being a brewery. Research of various systems will help the success of my project. The ability of this project to embody the original function of the space is inspiring to this thesis because it reveals that original historic uses can be established successfully with the appropriate additional programming.
Case Studies

Summary.

Case studies become an important stepping stone in the architecture design process. Each differs in its own unique way, yet retains a level of unison in comparison to other cases. With each element of research, a new discovery of design is born. It gives the designer a better comprehension design solutions and methods to be integrated into one’s own skill set.

The specific case studies each offer different approaches to the adaptive reuse typology. With careful investigation of these processes, one can choose the best solutions to each project. It also allows one to compare the various case studies across the board.

This creates an interesting comparison of well known architect’s methods to give one the ability to decide which approaches worked most successfully and to cross reference approaches onto other projects.

The design intentions of each project varied greatly, some specific to the user’s needs and embodying a level of respect for a community. Other architects took the project as a creative vice: considering it an opportunity to manipulate the building into a completely different use. An example of this process is Herzog & de Meuron’s CaixaForum project in Madrid, Spain. The designer used their budget as an opportunity to explore materiality and new technologies.

Other projects were more true to the original building. Whether it be through a cultural, physical, or both approaches. For example, The West Luke Asian Museum & Museo del Acero Horno both became educational tools for visitors to the space to learn from as they experienced them.
Whether the motives of the designer were cultural, physical, or an experimentation of materials and aging as a piece of inspiration, knowledge resulted. This lends to knowing what to focus on throughout the thesis process. Each integral part of an adaptive reuse project may then be explored but is given a more comprehensive understanding of the typology before the design process begins.

Through understanding, rather than relating these case studies to my thesis, I can develop my own approach to the reuse of existing structures in the built environment. Knowing the important steps to this process will result in a smoother design decisions.

Each case study offers a different element of success to adaptive reuse project. More specifically, different solutions to embody the needs of a space. Researching the needs of a community establishes a more efficient program for future design procedures of a space.

Other key components become methods for restoring and reusing a space, whether it be reusing the windows of a building or gutting the entire building and only using the shell of the it’s original structure. Each case study had specific instances of solutions for reestablishing structural integrities of the aging buildings. Some solutions included pipe columns, others cross bracing and beams, and the most unique being to line the existing brick wall with concrete.

A more successful and well rounded thesis will result, with a better understanding of methods for adaptive reuse projects. In order to ignite imagination, it is important to highlight strategies and passions of other designers. Relating to the passions of others for reuse projects, results in a larger drive for my thesis.
Historical Context

Over time, many historic downtown projects have been pursued. In every major city downtown revival has become a movement as people come to terms with the reality that our country’s past is diminishing before our eyes.

The United States is a country known for many things. A few motives that give outsiders the desire to come here are our freedom and the cutting edge technologies. When looking at marvels outside our country, most will think of a significant architectural element other countries behold: from Stonehenge to Stone Temples to the Great Pyramids. Each culture has its own trademark within history and has played an important role in the development of the history of architecture.

The United States is a young country compared to other areas of the world, but up until the last 50 years, citizens of the United States were living disposable lifestyles. With each new architecture movement, the old was torn down and the new was erected. This is the problem that needs to be addressed now by emerging professionals. We must allow change to happen, yet find ways to reuse and adapt previous projects that embody historic meaning to the country.

Marmarth, North Dakota.

This project is set in a small town in southwest North Dakota, known as Marmarth, once known as Neva, named after Neva M. Woods, the first postmistress. Later the town was renamed to Marmarth, a combination of Margaret Martha Fitch’s name. Margaret was the “granddaughter of Albert J. Earling, the president of the Chicago, Millwauke, and St. Paul Railroad” (Marmarth Historical Society Members, 1992).

In Marmarth’s prime it had ten railroad tracks running through the town. The economy was plentiful to build the township upon. It was the main connection of raillines between the rocky mountains and the twin cities in Minnesota.
Barber Block Building.

In 1908, the Barber Block building was built on Main Street (See fig. 34 below). It was used for operas and dances. It was considered a feat for its time with a “Pratt Pattern” (1908) steel truss ceiling which supported the roof without any pillars or posts obstructing the space. It was one of the few auditoriums of its kind and size for the time. The open space measuring 40’ x 70’ created a superior performance space (The Slope Saga Committee, 1976, p. 450).

The local paper, The Marmarth Mail, produced an article in 1909 about the space titled the ‘Marmarth Auditorium.’ It boasted the beauty of the space being naturally lit by a light well through the roof during the day and wrote of the advanced technology of electrical lights for evening performances. The ceiling pattern was modeled after the “famous McCauley Theatre” (1976) in Louisville, Kentucky (The Slope Saga Committee, 1976, p. 449).

The floor of the auditorium was underlaid with “Cabot’s deadening felt” (1976) and covered with dressed and polished hard maple flooring (The Slope Saga Committee, 1976, p. 450). The building also had four dressing rooms with lavatories and running hot and cold water. The stage had a “wide praenomen arch opening” (1976) with drop curtains and wings (The Slope Saga Committee, 1976, p. 449).

The walls were coated with asbestos canvas followed by elaborate paintings of local scenery. The building also included two coat rooms and two public toilets. The building was ventilated by a concealed system of ventilation. The lower level spaces were rented out for businesses.

The 75’ x 90’ structure was completed by the B.F. Meinecke Building Company of Marmarth, North Dakota on October 30, 1909. It was considered the best theater between the twin cities and the rocky mountains (The Slope Saga Committee, 1976).
Historical Context

Barber Block Building.

In January 1918, a fire which burned 100’ of Marmarth’s Main Street destroyed the Barber Block building. Thanks to the financing of F. O. Barber and C. P. Allison, the Barber Block was rebuilt the same year. These individuals were described as “Local energetic men--behind the movement” (1976) of reconstructing the Barber Auditorium after the tragic 1918 fire (See fig. 35 to right) (The Slope Saga Committee, 1976, p. 449).

With the reconstruction of the Barber Block, the First National Bank was added. The Barber Block and First National Bank share the structural wall between the two buildings. The Barber Block was renamed the Barber Auditorium when the construction was completed. The Barber Auditorium contained the same spaces it had originally. The bank’s program consisted of the Bank on the Main Level with additional offices in the back of the building while the upper level consisted of three-room suites (The Slope Saga Committee, 1976).

Economic Hardships.

The railroad went on strike in 1922, which had a profound effect on the town of Marmarth. Its roundhouse (See fig. 36 to right) lost sixty permanent jobs. By 1950, the roundhouse closed its doors. In 1988, the Milwaukee Railroad could no longer compete with Burlington Northern and was forced to remove its tracks in the area (German, 2004).

Other hardships attacked the town’s success, including flooding. Significant floods poured into the town over the years until the Milwaukee railroad built a permanent dyke around the town to prevent the problem. Over time, the population dwindled along with the condition of Marmarth’s downtown.

Mamarth’s success had been purely controlled by the generosity and interest in the area. C.P. Allison and F.O. Barber were two key contributors to the town’s early success. C. P. Allison also financed the Allison Block project which still stands directly across from the Barber Auditorium on Main Street in Marmarth (See fig. 36 to right).
In 1975, the Marmarth Historical Society was formed in an attempt to secure some of the town’s historical integrity.

The first project they conquered was the Mystic Theatre, built in 1914 by Guy Johnson. The theater had the best quality film machines installed in it for the time. Eventually, with the economic downturn affecting the rest of the businesses in the town, the theater closed too. The building was donated to the Historical Society by its latest owner, Mr. Leo Merz, in 1975 (The Slope Saga Committee, 1976).

The Mystic Theatre remains on Main Street to the north of the Allison Block building. It is a 26’ x 100’ building with a ticket booth protruding towards Main Street. The theater accommodates space for 200 people. With the help of local funds and private donations provided by the American Revolution Bicentennial Commission, the project was able to be restored (see photos to left).

It reopened in April of 1976 after the complete restoration project had been completed. It is known for its audible acoustics without any microphone use and beauty within the spaces. Each September it is used for cowboy poetry readings (The Slope Saga Committee, 1976).

In 2004, the Marmarth Historical Society tackled yet another project: placing a new steel roof on the Barber Auditorium. Funds were established from the Historical Society’s pull tab gaming machines and other funds raised by Clay Jenkinson. Clay Jenkinson wrote, Message on the Wind, a book where he described a concept of revitalizing the town of Marmarth and creating a “Marmarth Institute” and “think tank” (German, 2004, A1). The funds from Jenkinson’s book went towards the steel roof for the Barber Auditorium. The steel roof cost $34,000 and was completed by M & H Reddi-Mix & Construction of Baker, Montana (Voilesky, 2004).
Historical Context

Marmarth Historical Society.

In a 2004 Dickinson Press article, Merle Clark, a rural Marmarth resident was quoted, “If there is any hope for Marmarth to come back, it will be by people who want to get back to rural America and get away from the big city rat race” (German, 2004, p. A8).

With the railroad no longer a critical key to the town’s success, the backbone of the success now rests on the remaining citizens who are strong advocates of the integrity of the town’s history.

The downtown is currently comprised of the remaining buildings: the Barber Auditorium & First National Bank, the Allison Block, the revived Mystic Theatre, the bunkhouse (see photo to right), the bar, and Past Times steak house.

The Marmarth Historical Society has worked hard to keep the pride of the town intact. They have just recently purchased the original depot and moved it to the East entry of Marmarth on Highway 12, adjacent to the river (see photos to right).

The original hospital of Marmarth was moved to Bowman, North Dakota and used as a house in the mid 1990s. A doctor who currently owns the house has plans to donate it to the Marmarth Historical Society. The hospital would then be moved back to Marmarth and put on the site southeast of the First National Bank & Barber Auditorium across Highway 12.

With the addition of the hospital to the downtown area, a new sense of hope has aroused in the community. This has slowly given potential to the revival of Marmarth’s once bustling downtown. Having important buildings from the community’s history back in the town will bring about a more welcoming feeling to the town, rather than the ghostly essence it emits currently.
Historical Context

The future of Marmarth, North Dakota.

The existing foundations of the Woods Hotel, which burned down, are still existing on the northwest side of the Barber Auditorium (see photo to left). The street lights show remnants of a once successful downtown awaiting rejuvenation.

At one point in time, the Main Street was elegantly landscaped with a flowered median (see fig. 38). As cars became more popular, the median was removed to allow for parking access directly in front of the buildings. With various empty lots downtown, potential for a parking lot exists, leaving a possibility of reincorporating the original flowered median.

The surroundings of the downtown have been very weathered over time. Yet, the remaining buildings retain such powerful architectural character and beauty, that the downtown is beckoning for a second chance.

With the area’s surplus of oil in the Bakken Formation and Natural Resources currently being sought, the hopes of a revival of the town of Marmarth and its downtown are looking up. Natural Resources such as wind and natural gas are being harvested in the area. This is bringing jobs into the area as the continued care of the wind farms is established and the natural gas plant seeks workers.

The oil job surplus is not a new scenery to the area, but it has the same influence as it does to surrounding communities. It carries the ability to fluctuate the population levels with the rise and fall of the economy. With the sustainable design movements led by the government, local natural resources will become a higher priority. This should establish more jobs with less fluctuation in the area. High hopes for the area are the result of each movement towards utilizing local resources.
Goals of Project

*Academic.*
The goal of this project is to seek a greater understanding of the methodologies of adaptive reuse. A better understanding of design methodology will result by seeking out a more in-depth relationship to the span of components involved in the success of a reuse and restoration project.

This project will lend to a new understanding for the implementation of aging into my personal design theory, giving me a new grasp of the built environment.

This project will establish another perspective on sustainable design through reuse of an existing structure. Careful integration of systems to make the building function most appropriately for the climatic region will play an important role in the sustainable process.

Any added structures which surround the existing structures will require special consideration. In order to be integrated, the building will need to fit contextually with its surroundings, all the while considering designing as a team with the environment.

*Professional.*
The goal of this project is to accomplish more marketable skills for sustainable design projects, along with the ability to zone in on a specific set of skills needed to be more applicable in the design world.

A better grasp of adaptive reuse projects results through researching previous solutions. Careful investigation into what makes each project successful can be taken into special consideration when making design decisions along with sparking creativity for solutions to this project.

Innovative ideas of combining systems and restoring a town’s historical integrity will make for a well-rounded sustainable solution to this project. Creating an unforeseeable solution will become the key goal to the success of this project.
Goals of Project

Personal.
My goal is to push my understanding of architecture further than I have in any previous projects. Being inspired while inspiring others will be a key role to the project’s success.

I want to seek full understanding of why buildings fall vacant and why nobody takes initiative early on to seize an opportunity of a reuse project. There is generally a significant disconnect in the years a building remains empty before someone takes the initiative to see its potential, transforming it into a new use.

I want to understand why buildings sit vacant long enough to become vulnerable to trespassers. To understand why the sense of pride in a building is lost the when defeat occurs. I want to explore the properties that give some community members the pride to embody a historical society while others watch buildings fall into ruins.

I want to understand how to initiate a sense of pride in people about reusing what is already built while knowing the possibilities of creative solutions exist. In turn, I want to inspire other designers to view a ‘piece of wreckage’ as a place of possibility.

I see this as an opportunity to find my true niche and to ignite a sense of hope in more residents of the Marmarth community. Knowing a young mind can see such potential within the past can help this process, along with the overflowing amount of pride members of the community already embody.

It has always been my dream to someday work where I can do adaptive reuse projects and seek an equilibrium of new and old within the built environment. This journey of exploration will open a new set of doors of understanding for me. It will be a journey of research, learning, and evolving as an individual and a designer.
Qualitative Analysis

The existing street is organized on a grid with Main Street running northwest to southwest. The Barber Auditorium & First National Bank building is located on the southwest end of Main Street. The lots to the north of the building all stand vacant with the remaining foundations of buildings which were once there.

The Allison Block building is on the southeast end of Main Street with one vacant lot between it and the Mystic Theater to the North. The Past Time Steak House and the bar are North of the Mystic Theater on the East side of Main Street.

On the block North of the Barber Auditorium sits the original Marmarth bunkhouse. It has recently been updated to accommodate few rooms for visitors to stay. The train depot used to sit directly North of the Marmarth bunkhouse, but has been moved many times over the years and moved to the East entry to Marmarth on Highway 12.

The Barber Auditorium, Allison Block, Steak house, and bar are all original brick buildings. The Mystic Theatre is a stucco building, and the bunkhouse and depot have their original wood siding.

All of the buildings are rectilinear in form, with architectural characteristics giving each their own aesthetic definitions. The Barber Auditorium has beauty in its storefront glass, brick corbeling and patterns, and copper detailing. The Mystic Theatre is defined by its archway entry which houses the ticket booth, pulling users inward.

Most buildings on Main Street are three to four stories, giving significant gaps where other existing building’s foundations are the only remnants. These foundations represent the original layout of the downtown, yet play a role for future restoration of the space.
The sun glows over the buildings remaining on Main Street, their shadows creating a visible echo of the vacant lots to the north of the remaining existing structures.

The beautiful badlands and scenic Missouri river surround the town, giving its own softscape as one looks beyond the structures.

The vegetation is very slim and consists of only man-placed trees and naturally occurring prairie grasses that have overtaken the empty lots. The Missouri River creates a beautiful element to the Badlands encompassing Marmarth. With profound sunrises and sunsets, the glare off the water and sounds of flowing water emit a sense of extreme tranquility. It gives a setting of release from the everyday realms of society and opportunity for escape.

Wind can be extreme in the area, especially with the cold winter temperatures. It barrels in from the hills, often having a bone chilling effect on beings. Some trees throughout the town do justice in blocking the winds. The wind is cold and from the northwest in the winter and warm and from the southwest in the summer months.

When one travels through the site, there is very little display of human intervention. It appears desolate except for cars at the gas station, bar, and steak house.

The nature of the site is closely associated with the state of North Dakota: hot summers followed by extreme cold winters, often with short springs and fall seasons.

Many signs of distress exist throughout the town. Many homes are vacant and some structures are falling inward. The town has worked hard to establish a sense of beautification recently. Funds were given to homeowners to revamp their homes in order to give the town a face lift. This beautification process will be a gradual one. With each improvement achieved, the town gradually obtains its original aesthetic integrity.
**Agriculture Classifications**
Soils are cropped for small grains and rows in a summerfallow or crop system. Often, the fields are used for hay or pastures rather than solely agriculture use (Marmarth Series, 1999).

The native vegetation to Marmarth, N.D. is green needleglass, western wheatgrass, needleandthread, prairie junegrass, along with a spread of forbs (Marmarth Series, 1999).

**Engineering Soil Classification**
The soil in Marmarth, N.D. is moderately deep, well-drained permeable soil formed from weathered soft sandstone. The slopes in the area range from 0-25%, giving the soils diversity throughout (Marmarth Series, 1999). The soil is unstable, meaning any tall structures would require careful consideration for foundations (see fig. 39 at right).

**Water Table**
The drainage and permeability of the area is well drained. Runoff is often negligible, depending on the surface textures and the slope of the area (Marmarth Series, 1999).

Moderate permeability occurs seasonally. The water table fluctuates with changing seasons. In the spring (between April and June), the water table is at a depth of four to more than six feet (Marmarth Series, 1999).

**Utilities**
Heating fuels are 97% utility gas with the remainder being bottled, tank, or LP gas. Other utilities in the town of Marmarth include water, solid waste management, sewer, and electricity (Marmarth Series, 1999).

**Vehicular Traffic**
The vehicular traffic in the town is slow throughout the township with high amounts of traffic on Highway 12 which runs through the town. Highway 12 is used by the many oil and natural resource workers in the area. Marmarth hosts bike ralleys and other fundraising events which bring heavy traffic through the town seasonally. Outside of the heavy traffic on Highway 12, the rest of the town follows a slow-pace movement throughout.
Quantitative Analysis

Plant Cover
The picture to the left emits the desolation of the site. With three remaining trees and natural grasses that have overtaken the empty sites.

Site Character
The site carries a historic character with the surrounding empty lots and the remaining architecture which stands today.

Topographical Map:
The map displays the slopes varieties of 0-25%, as hilly sedimentary uplands with convex changes in elevation (Marmarth Series, 1999). The picture to the left shows some of the surrounding badlands.

Fig. 40 below shows the Little Missouri river, the city boundaries, railroad tracks, and the hilly landscape which surrounds the town.
These pictures show Main Street looking in various directions from the Barber Auditorium (below).
Climate
The average temperature for Marmarth is a high of 55.9 degrees fahrenheit and a low of 29.7 degrees fahrenheit. The town averages 14.45” of precipitation a year and averages 41.3” of snow per year. The following charts demonstrate characteristics of wind averages, sunshine, cloudy days, snowfall, precipitation, humidity, and temperatures for the town of Marmarth.

Wind
The wind is high in comparison to the average wind speeds of the United States.
Quantitative Analysis

Sunshine
The amount of sunshine in Marmarth, N.D. is relatively close to the average for the United States.

Cloudy Days
The percentage of cloudy days in Marmarth, N.D. accounts for many days throughout the year, with about half of them coinciding with some form of precipitation.
**Quantitative Analysis**

*Snowfall*

The amount of snowfall Marmarth, N.D. receives each year breaks the yearly average of the United States.

![Snowfall](image)

*Precipitation*

Marmarth, N.D. averages about 14.45” of precipitation each year.

![Precipitation](image)
Humidity
The humidity in Marmarth, N.D. is comparable to the averages of the United States. It generally does not break the average, except in the winter months.
Temperatures
Marmarth, N.D. temperatures are relatively moderate. At times, the area experiences extreme temperature differences during the summer and winter months.
Programmatic Requirements

Space Allocations

Brewery.

Spaces to be included for the brewery include storage for drums of beer and the appropriate mechanical systems to power the equipment. The basement would be an ideal area for this function.

Public Spaces.

These include: toilet rooms, dining spaces, and an outdoor patio. These spaces will be on the Barber Auditorium’s main level. The original architectural characteristics will be maintained with the storefront windows and built in booths which match openings into various spaces.

Private Spaces.

These include: staff room, a small kitchen, and an office for the manager. This will be in the rear of the building (furthest from Main Street) and in the lower level. These spaces will be spaces for the heart of the building - the individuals who make the place run smoothly.

Auditorium Space.

This space will be renovated and used for performances, public gatherings, weddings, community use, or any other unforeseen use. Any original details existing will be used. Seating will need to be updated and the stage space will require attention to update the bathroom facilities.

Offices & Research.

The First National Bank portion of the building will be converted to offices to house the Marmarth Historical Society. Also, additional offices will be added for paleontologists who visit the area with the Pioneer Trails Museum out of Bowman, N.D. These offices and the upper level will be used for storage spaces to hold any artifacts discovered in the area when they are in-transit to Bowman. The office spaces in the bank building will accommodate research needed for the success of paleontology and historic preservation.
Space Allocations

Inn.
The Inn will be a second phase to the reuse of the Barber Auditorium-Brewery. The Inn will be north of the Barber Auditorium-Brewery where it is observable another building once sat, which was a hotel. Through embodying the originality of the site, a new Inn will be connected to the Barber Auditorium, following the original hotel with site placement, and will be a reinforcement to the brewery’s success.

Spaces included: luxury guest rooms, conference rooms, and an atrium connected to the Barber Brewery. These will all be public spaces to accommodate the needs of visitors.

Spaces will be necessary to host the staff who run the building. A lounge on the main level with couch will be included for daily use.

Code Updates.

The Barber Auditorium-Brewery will need many updates outside of its weathered status. An elevator will need to be incorporated. On the alley side of the building a current shaft exists where one may have been at some point in time (see photo to left). The reuse of this shaft will work well for an elevator update. The addition of handicap accessible bathrooms, entries, and parking will also need to be integrated in the design.

Fire codes may also prove to be an important element in the design process. The building will need a second staircase exit to meet code. Fire rated doors will be added and walls will need to be updated to meet proper fire ratings for the building occupancy type.
“Therefore, when we build, let us think that we build for ever. Let it not be for present delight, nor for present use alone; let it be such work as our descendants will thank us for, and let us think, as we lay stone on stone, that a time is to come when those stones will be held sacred because our hands have touched them, and that men will say as they look upon the labor and wrought substance of them, “See! This our fathers did for us.” For, indeed, the greatest glory of a building is not in its stones or in its gold. Its glory is in its age.”

- John Ruskin (Tyler, 2000, foreward)
**Process**

**Parti.**

Regenerating spaces...the process of taking an existing material and creating the possibility to continually be transformed and regenerated into something new.

This was the starting point of my design processes, a mode of inspiration which can evoke thoughts and inform design decisions.
Models & Watercolor.

Through rip and tear models and use of various materials a more creative solution can result.
Process

Preliminary Plans & 3D Digital Modeling.

Starting plans determining ways to layout interior spaces and site placement and proportions of the Inn (new construction).
**Site Development.**

Site proportions and orientation of the existing building led to the location and forms of the new structure.

By taking careful consideration for human comfort, space, and the manner which people move throughout the spaces better connections were established between the new and the old structure.
Process

Elevation Studies.

In order to understand patterns and relationships between the new and old building, elevation studies were executed to understand original construction and design concepts. Also helped with proportioning of the new structure.
Atrium Development.

Circulation played an integral part of determination of the manner the new and old buildings would come together. Determining the materials, form, and function of the space became a significant challenge.

Understanding water runoff, light, ventilation and experience of the space determined the materials inside the space. The atrium space became a transition to the spaces in the old and the new building.
Process

Midterm Plans.

Spatial layout was very simple at midterm, paying significant respect to the existing spaces and the manner the forms would affect the overall composition of the Main Street.
Brewery Research.

The brewery became a challenge to implement into the existing building. Understanding adequate mechanical and HVAC systems. A design by an NDSU Mechanical Engineer is to be incorporated which is powered by wind and biomass. It will be 80% self-sufficient in production. Diagrams below demonstrate some of these concepts.
Material Palette.

The material palette was informed by surrounding structures and nature. The rammed earth walls in the new construction are related to the stratigraphy of the badlands which surround Marmarth. The colored corrugated steel relates to many of the simple structures throughout the town. The glazed CMU blocks relate proportionally to the Allison Block which is across from the Barber Auditorium.
Final Design

Final Boards.

The layout of the boards relates to the stratigraphy of the badlands while relating to the original intent of a parti and the concept to regenerate.
Final Plans & Site Plan.

Various plants (see fig 54-58) are layered in order to create a windbreak. The layout of the plans draw inspiration from the various process drawings and models and parti.

- basswood
- flowering crabapple
- CO blue spruce
- Indian wheatgrass

Existing features kept in tact.
Final Design

Watercolor Perspectives.

The perspectives below render to the composition of the relationship of the old and the new. Highlighting the original spaces and defining the connection with the glass atrium.

The levels of the spaces in the Inn vary in height to resolve privacy issues while simultaneously creating a layered affect to the overall composition.
Axonometric

This watercolor drawing gives an overview of the space and creates a more comprehensive understanding of the design. Showing relationships between the old and new and the manner that each roof plane of the atrium sheds water onto the green roof balconies creating reuse of on-site water.
Final Design

Interior Perspectives.

These watercolor renderings lend to experiences of the design. The materials used and related to the atrium give a better feeling of the experience within.
Final Design

Details.

Windows are set back in the wall 18” to accommodate wall thicknesses and create more interesting experiences as shadows cast on the inside have unique characteristics.

Step 1: Framework is built and moist layer is added. The earth consists of a mixture of sand, clay, concrete, and gravel.

Step 2: Layer of moist earth is compressed with a pneumatic backfill tamper.

Step 3: Next layer or moist earth is added.

Step 4: Following layers are added and compressed until reach desired height.

Step 5: Framework is removed and rammed earth wall is revealed.


Reference List


Figures:


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Figures:


Jenn Whitney
205 1st Avenue SW
P.O. Box 176
Bowman, ND 58623

(701)206-0287
jennwhitney12@gmail.com

‘architecture at ndsu is a place to create yourself’