Community Design Build

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of North Dakota State University

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

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Danielle Pauley 6-17-13
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the Abstract

Thesis Abstract

This thesis provides some answers to the question, how might a restorative community-based residential design build center/curriculum be created where the structure itself resonates with the embedded values of such an initiative? The Typology for the examination of this problem is a tech/resource (research) 'shop'. The site for this project is Fargo, North Dakota. The Theoretical Premise/Unifying Idea that guides the research is, "design-build educational curriculum can coincide with the preservation of local important communities and neighborhoods." The Project Justification is, "in a world of overconsumption, renewal and restoration of existing architecture is essential for the future of sustainable human development."

Problem Statement

How might a restorative community-based residential design build center/curriculum be created where the structure itself resonates with the embedded values of such an initiative?

Above is an image of the remodeled deck at 722 9th Ave N (Fargo). Using refinished recycled wood, Dani and her father completed the design and construction over two weekends. Cost: $1,000. Value: ~$4,000.

Statement of Intent

Statement of Intent

Project Typology:

A research/resource facility

Claim:

(Historical) neighborhoods and communities can be restored, renewed and rejuvenated by the implementation and resourceful action of local design-build education curriculum.

Premises:

Actor: Many design students tend to work and live together already while their design build projects frequently collect in the trash instead of toward the use and benefit of each individual (along with other members of the community).

Action: Communities can be rejuvenated nearly free of cost to the home owner through the investment and involvement of education systems.

Object: Individual properties and cities as a whole can increase in value and advance in global awareness at minimal costs in general (labor and design are virtually free).

Manner of Action: Built environments can become educational environments in attempt to be more resourceful, reliable, economic, beautiful, and sustainable.

Theoretical Premise/Unifying Idea:

Design-build education curriculum can coincide with the preservation of local important communities and neighborhoods.

Project Justification:

In a world of overconsumption, renewal and restoration of existing architecture is essential for the future of sustainable human development.

Here Koda sits inside the 722 9th Ave N residence next to the custom piece of furniture that finally permits him from chewing shoes at will; plus final project credit for Arch 726. Spring 2012.

the Proposal

This series shows the progression of the redesign phase of the deck project. The new design accommodates all inhabitants (and dogs) of this residence while promoting much more efficient snow removal.

Narrative

An addition to the M. Arch curriculum of this particular nature is an interesting topic because it can act as a resourceful/useful way to produce renewable products in a design-build classroom setting. In the past, throughout six years of Architecture schooling i have created several things that either found it's final resting place in the trash or was initially redesigned or reconsidered due to the limitation of the final product's scale or overall size. And while neither of these actions seem to be extremely crucial in today's society, I do feel that they go against natural and primitive ideas of learning to produce architecture in the first place; which is: acquiring a set of skills to eventually obtain the ability to successfully design a space that can be constructed to aid the accentuate a particular ritual of the human body with regards to sustainable environmental needs of our societies and planet today.

In contrast to a seemingly wasteful approach to design and construction within a learning environment, I have noticed through my own experiences as well as discussions with fellow colleges that many students and faculty alike find a great sense of accomplishment and understanding of human scale through large

scale design-build type projects; where students are encouraged to create structures, artifacts, and installations that humans can interact with at a one-to-one scale

But like I mentioned before, since most opportunities for assignments like these are still based off hypothetical programs, many manifested objects results as wasted material due to a lack of contextual usefulness.

A proposal that qualifies as studio credit for students obtaining their M. Arch degrees while simultaneously improving the appearance and sustainability of homes in the surrounding communities is as follows:

Through loan and rental agreements, NDSU will acquire properties that are suitable for multiple resident living situations (groups of design students) and are in need of renewal and renovation. Then students will choose and be arranged in living situations among these houses. Throughout the course of their stay, either in groups or working individually the students/residents will begin to assess the design situation they are presented with. From this assessment, they will be assigned (through a course conducted and held at NDSU's resource facility - the structure to be designed for this course) to create a project priority list. These projects consist of design-build proposals and solutions that will ultimately improve the over-all being of the home. These design solutions will be critiqued, approved and inspected by a licensed professor. Construction will be aided by a supervisor if necessary.

After reading a few passages in Adam Sharr's series Thinkers for Architects, "Heidegger for Architects:, I couldn't help to relate to Martin Heidegger's way of thinking not only toward architecture as a subject, but also the way he describes method of construction and its relevance to the human body. The following text seemed to capture not only the method of design and construction that I hope to pursue, but also coincidentally described a case study, that due to macro/micro climates, beautifully resonates with that of Fargo:

> "Considered according to Heidegger's way of thinking, Skiddaw House Hostel located human life in the valley, standing for the human presence there. It was built according to the needs of its first inhabitants. The building then shaped their lives, and they continue to shape the building through their daily occupation of it. Construction was determined to some extent by the materials available."...

The first portion of the statement speaks so purely to the idea behind his proposal. The attempt to regain a sense of place by engaging in what is already present.

... " The building was also adapted to the local micro-climate: buried into the bank to maximize exposure to the southern sun and to shelter against the cold north. Its pitched roof derived from the practicalities of shedding rain and snow at a spot so exposed. Its unadorned fenestration derived from the light and ventilation needs of the rooms behind. Built thus, Skiddaw House can be interpreted as reporting a way of understanding the world around, related to people at the places and materials they found to hand, of which Heidegger would sympathize" ...

The Skiddaw House is located in the UK, where due to latitude conditions would be similar to that of Fargo; in terms of cold/dry conditions, snow, wind(chill), lack of daylight during winter months. From the text above, the description of the Skiddaw House itself and the systems incorporated sound very familiar as I rehearse the procedure of the advancement of this project. Not only do the words resonate with the actual NDSU research facility as a structure, but it also speaks to the way in which the students will be improving their rental properties. All improvements conducted on the rental properties by the students/residents must improve the sustainable qualities of the structure thus improving its overall life span, which preserves and explores the historical wealth of local communities. This restorative act has the ability to enhance and redeem the context and richness of communities and cities similar to Fargo. Fargo and the Midwest are more conducive to these type of projects due to its overall prosperity as a society.

Ultimately, in his final statements of the paragraph, Sharr describes how the passing of time greatly effects the way in which we live, thus greatly effecting the structures and spaces we live in. Even though this is something we cannot control, I feel that it is something we, as designers of this planet, need to address. The following text beautifully describes the inevitable passing of time in a way that strongly urges me to explore and consider preservation of all products as we move forward through our lifetime. These words speak to the way in which NDSU's research facility itself and design-build curriculum will be structured , to the way in which the rental properties are assessed by the students in the course, to the way in which this thesis project will be conducted throughout the year.

"But the building's [Skiddaw House] adaptation into a youth hostel and its subsequent closure also speak of the passing of the way of life, and that way of understanding, in this place. The upkeep of the Skiddaw House has become too expensive. At once, the building stands for sometime presence of ethos not dissimilar to that advocated by Heidegger, and also for its contemporary absence. Semi-derelict, the house is a conspicuous fragment of the past."

Sharr, A. (2007). Thinker for Architects. Vol.2.
Heidegger for Architects. NY,US: Routledge. p10.

"History is alive. Don't be lazy!"

S. Wischer, Assistant NDSU Professor. 2011.

Above is an etched style print of Asst. NDSU. Professor Stephen Wischer and the feeling a 2nd year architecture student may experience upon taking the course; inspired by Alice in Wonderland. Personally this was one of the most rewarding studio experiences. Spring 2010

the Client

User/Client

Owner:

The NDSU research facility will be owned by the university, and operated by the faculty of its design department.

The properties being renovated for class will remain under the ownership of the home owner. Rental agreements and construction liabilities will be resolved through lease/loan agreements between the university and the property owner.

User:

The students, faculty and community members of NDSU's design school.

NDSU

IT'S HAPPENING AT STATE

Architecture, landscape architecture programs maintain accreditation

NDSU Renaissance Building

Project Elements

Major Project Elements

Library:

The students will have access to various manuals and informative construction materials. Since an Architecture library already exists in downtown Fargo, this space will lend itself to the research of construction and systematic solutions.

Classroom:

Small classrooms will be located near the library research area. This space is used for critique and presentations. This classroom is limited to presentation material and products so storage and desk space is not needed.

Office Area:

A small fully close-able office will exist. Most likely located centrally to serve the public and offer an organization system for the rest of the building.

Lumber/Material Courtyard:

This space allows the community to involve itself with its university and strengthen its neighborhood by accepting donations of various household and lumber materials. as well as serviceable appliances and hardware. Recycled products are encourages for all projects. This will also demand a space for loading and service.

Tool/Hardware Shop:

It could be possible to combine the existing Renaissance wood shop with the new research facility shop. This would eliminate excess now and clutter in Renaissance as well as centralize construction.

Site Introduction

Site

Fargo, North Dakota, with much of the rest of the Midwest is very conducive to a project like this because of its overall prosperity along with its willingness as a community to invest in trust and promote its youth; especially within the aspect of arts amongst the community.

Midwest

Fargo, North Dakota

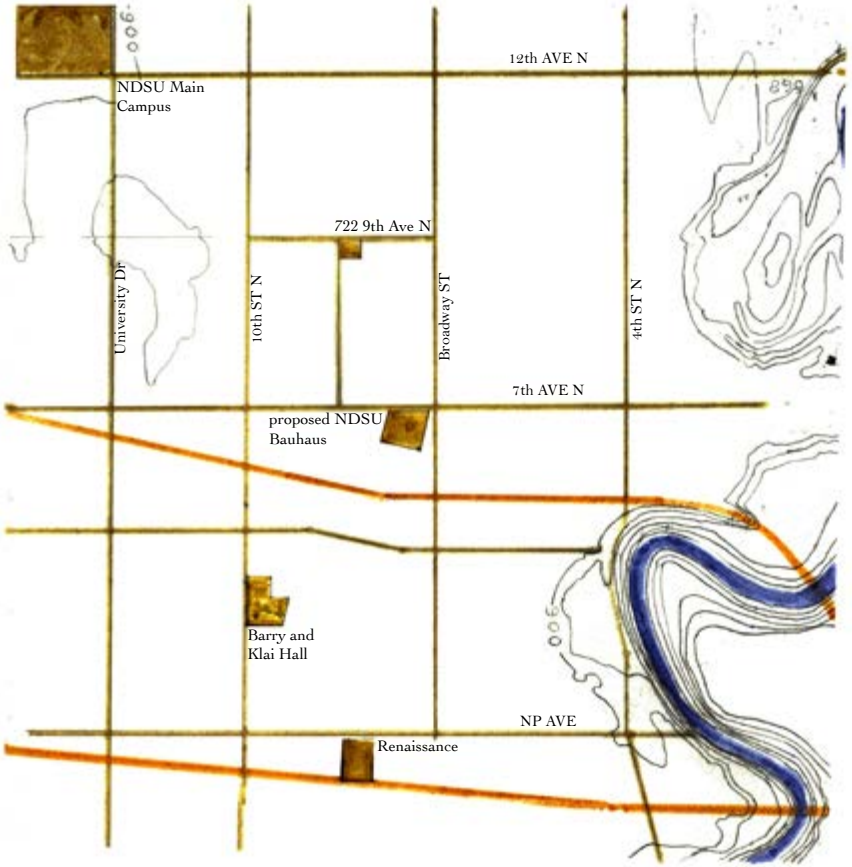
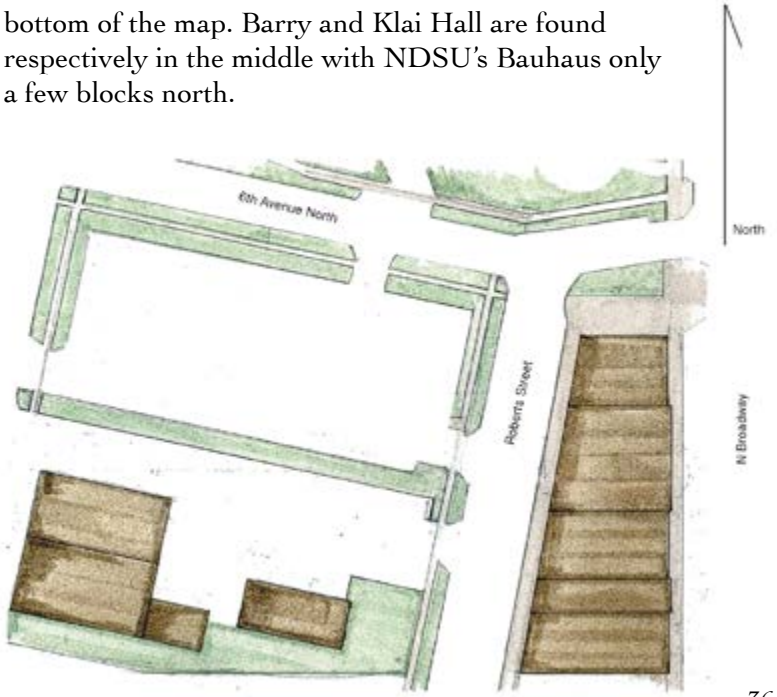


Fig. 1. Topographical map of downtown fargo.

The site for this project is located at the corner of 6th Ave N and Robers Street in downtown Fargo, shown below. The image on the opposite page shows the proximity to existing NDSU buildings as well as a good relative location to prospected neighborhoods for renovation. Renaissance is shown in brown at the bottom of the map. Barry and Klai Hall are found respectively in the middle with NDSU's Bauhaus only a few blocks north.



Plan for Proceeding

Project Emphasis

Theoretical Premise/Unifying Idea:

Design-build education curriculum can coincide with the preservation of local important communities and neighborhoods.

Project Justification:

In a world of overconsumption, renewal and restoration of existing architecture is essential for the future of sustainable human development.

Emphasis:

The focus of the curriculum itself coincides with the way in which I will be conduction the development and process of the research facility. Every aspect of design must be sustainable. The renovation of neighborhoods and NDSU's new facility will support sustainable design in its creation and systematic existence.

Summary:

These residences, curriculum, facilities and design strategies will all promote usefulness and resourcefulness within the final projects produced. Individual properties and cities as a whole will increase in value and advance in global awareness at minimal cost. I believe that built environments can become educational environments in an attempt to be more resourceful, reliable, economic, sustainable, and beautiful.

Plan

Direction:

Research will be conducted through case studies of design-build studio spaces, discussions with local residents, teachers and students, and response to any other pertinent articles or resources.

Much of my research has already been conducted through personal experience. Throughout the last 5 years I've had the opportunity to own (secondarily) and live in a house in Fargo. Over those fews years, being inspired by design school, I have been able to assess and modify my living arrangement as needed. All design work was completed by me. Construction was accomplished with tutorial and physical assistance from my father. So far we have:

- remodeled, insulated/sheeted, and heated the garage
- built partition walls and door for 4th bedroom
- installed ceiling fans in each existing bedroom
- added 1/2 shower to 2nd bathroom
- replaced kitchen windows
- remodeled/refurbished side deck (shown on front page)

Within the year I hope to:

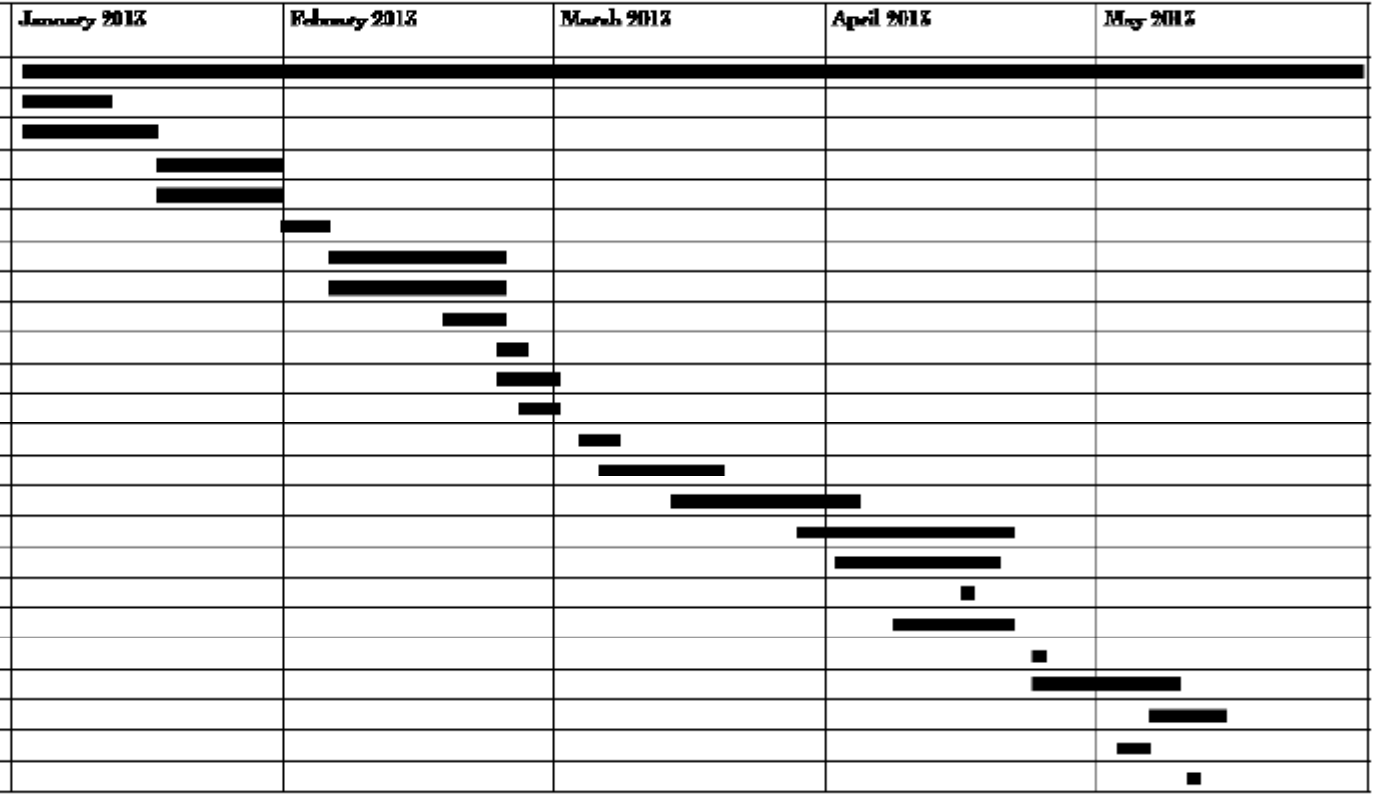
- refinish kitchen cabinets
- install garbage disposal
- establish entertainment/TV storage system
- rebuild fence surrounding backyard

This active and dynamic participation with my project will guide many of the final research avenues. Qualitative and quantitative data based off the theoretical premise/unifying idea will be gathered simultaneously via the concurrent transformative theory, where obtained data is constantly integrated with analysis and interpretation.

Pertinent information will be compile digitally. Photo documentation of both the work produced on my home and the production of the thesis assignment will be crucial. Presentation and representation of the tasks accomplished in all areas are critical aspects of the final project.

Schedule

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



Studio Experience

Fall 2008:

Tea House, Fargo ND; Stephen Wischer
Boat House, Minneapolis MN; Stephen Wischer

Spring 2009:

Dance Academy, Fargo ND; Meghan Duda
Dwelling, Fargo ND; Meghan Duda

Fall 2009:

Wellness Center, Fargo ND; Cindy Urness

Spring 2010:

ACL Music Venue, Austin TX; David Crutchfield
Museum Models; Mike Christenson

Fall 2010:

High Rise, San Francisco CA; Don Faulkner

Spring 2011:

Marvin Windows Design Competition, Fargo ND; Frank Kratky
Oil Boom Urban Design, Williston ND; Don Faulkner

Fall 2012:

St. Ahab Chapel Addition, Agincourt IA; Ron Ramsay
Buddhist Chapel, Fargo ND; Ron Ramsay

the Program

Theoretical Premise/Unifying Idea

Design-build education can coincide with the preservation of local important communities and neighborhoods. This is pertinent because in a world of overconsumption, renewal and restoration of existing architecture is essential for the future of sustainable human development.

After researching the various avenues I planned for myself, I came to the conclusion that the structure I will be designing is ultimately a Bauhaus. Walter Gropius' European Bauhaus (Building House) was the early model of the modern art school. In 1919, when the building was founded the curriculum was arranged to include both theoretical education as well as practical training in the educational workshops.

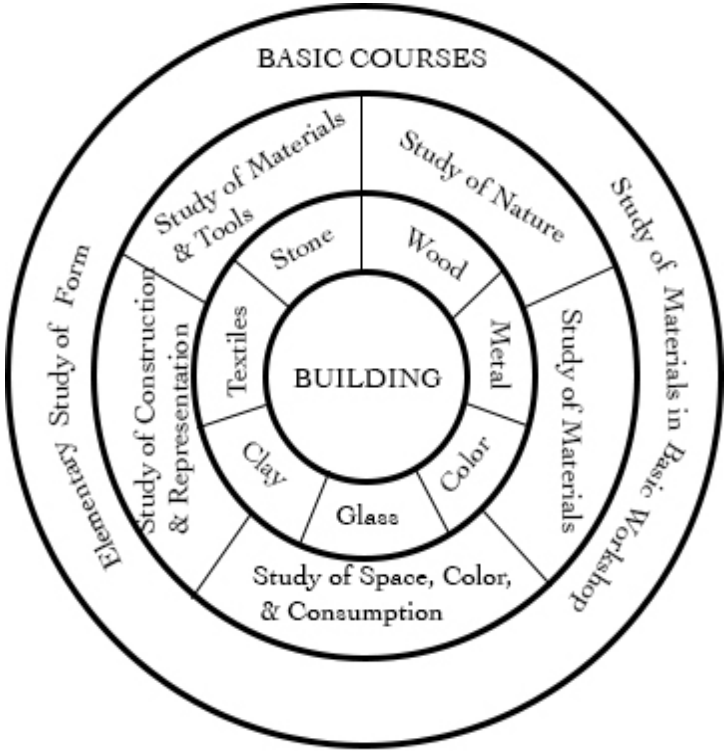
The space I will be designing will accommodate a similar program; preferably in its simplest form, meaning minimal square footage allotments and efficient use of space available.

Essentially, NDSU's Bauhaus will be a state (university)-sponsored initiative to bridge the gap between art and industry while integrating the artist and the craftsman. This is essential because I feel that as designers of architecture, the ability to understand construction and tectonics is highly valued and tends to throughly enhance the students concept of space and design.

Just as Gropius' Bauhaus had, the curriculum will emphasize and embrace our urban, technological, and machine culture of the 21st century. Gropius was affected greatly by the horrible reality of WWI and wanted to establish a place where industrial methods were not used for destructive wars but instead for the betterment of social conditions.

The Basic Bauhaus Curriculum: First, all students enrolled in a six-month preliminary course that included painting and elementary experiments with form. Then after completing the prerequisites they proceeded to threes years of workshop training under two masters: an artist and a craftsman. The students studied architecture in theory and practice by working on the actual construction of buildings. This combination of techniques and methods are vital to a student's ability to attempt to understand the various systems, mechanics and procedures found within the field of architecture. By combing hands-on activity with the written knowledge of textbooks and lecture, but students are automatically more invested in the subject.

Another key element to as successful design-build program is the teaching staff. Gropius' Bauhaus was loaded with design geniuses. Among the professionals were Paul Klee (painter), Wassily Kandinsky (painter/art theorist), Oskar Schlemmer (painter, sculptor, designer, choreographer), Johannes Itten (painter, designer, writer theorist), Laszlo Moholy-Nagy (painter/photographer), Josef Albers (glass/metal worker, furniture designer, typography) and Marcel Breuer (architect/furniture designer). Bauhaus students had the opportunity to partake in day-to-day contact with some of the most important/ impactful practicing artists and designers of their time. The school came to be known for its masked balls/galas and kite processions, experimental light and music events, and "Tradiac" abstract ballets that it organized. These occasions welded students of different ages and nationalities together in a community. The Bauhaus was the beginning of the art school as an alternative way of life. The image on the next page depicts the students route and priorities as they work their way through the program.



Bauhaus Course Outline. Fig. 2

The program will combine elements of both fine arts and design education. The curriculum will commence with a preliminary course that immerses the students in the study of material, color theory, and formal relationships in preparation for more specialized studies in the following years. Following their immersion in Bauhaus theory, students will then have the choice of studying various specialized workshops, including metalworking, cabinetmaking, weaving, pottery, typography, and wall painting. Through these workshops the students will gain knowledge, ideas, and confidence that will guide them through the construction process. The cabinetmaking workshop is one of the most valuable set of skills offered. This studio reconciles the very essence of furniture, often seeking to dematerialize conventional forms such as chairs to their minimal existence.

The textile workshop provides the skills necessary for the production of abstract textiles suitable for the social environment. Experimentation with material (cellophane, fiberglass, and metal) is encouraged. Fabrics and textiles are a very commercially successful product, making it a very useful skill to have.

Along with cabinetmaking, the metal working studio is also very popular and most successful in developing custom design solutions for the various properties. In this studio, designers create beautiful, modern items such as lighting fixtures and tableware.

The typography workshop was conceived as both and empirical means of communication as well as an artistic expression, with visual clarity stressed above all. This is where students will explore and produce means of representation. Again students are encouraged to explore mediums and techniques in this practice. This is also the time and setting designated for presentations and critiques. Projects will be critiqued in many areas; along with design solution the representation choice and use of photography and text will be heavily critiqued in order to help the student reach their presentation potential. I put high priority on this course because as architects, most often our production is restricted to only the representation of the structure, leaving the actual construction up to a separate party. So as students of the field we must hone in our representation, communication, and presentation skills to ultimately obtain a strategy of sale.

The proclamation of the Bauhaus programs describes a uptopian craft guild bringing together architecture, sculpture, and painting into a single creative expression. The institution will develop a craft based curriculum that will produce artisans and designers capable of creating useful and beautiful objects appropriate to our current system of living. This these standards in my, instead of producing free standing, isolated, individual objects, the NDSU students will used their construction skills to renovate and rejuvenate the rental property of their choice. Through a process of lease and liability agreements, groups of students will occupy a residence for the duration of their schooling. After interacting with the space the students will determine design flaws and present solutions. After certification from a licensed professor the students will establish a construction plan and proceed. The physical labor will be conducted by the students and a construction advisor if applicable to the project size. Tools and materials will be stored at the Bauhaus with an available check-out service to maintain a safe and efficient construction atmosphere. Students will then be required to document their work, process, and production for formal presentation and grading purposes.

So while the entire design phase that the students go through is conducted in the Bauhaus facility, much of the build process will be held at individual properties throughout downtown Fargo. The students are actively renewing the existing neighborhoods but upgrading and providing the home with custom sustainable design solutions. Local families are encourage to temporarily donate their home to the project in exchange for inexpensive renovations. The families will be provided with temporary housing throughout the duration of their contract.

I feel like this participation with the neighborhood is strategic in the sense of reusing and recycling. The use of citizen involvement to build a base of local power and support, produce a project identity, and attract resources for a project implementation is an integral part of community-based design. The overall wealth and prosperity of the Fargo community provide and ideal setting for this sort of curriculum implementation. Over 30% of North American architecture schools run university-based community design and research centers that engage the public in decision-making about the built environment.

This can instill a sense of ownership and pride throughout the community, thus promoting better care and maintenance of our environment.

The benefits of home ownership leads to economic advancement throughout generations. Decent, affordable, sustainable housing can help address much more that just the problem of inadequate housing.

Proponents of design-build projects in architectural education often cite the success of teaching technical "how to" skills to complements or replace standard classroom study while aiding students' future professional development. Those opposed to a design-build program simply see the act of construction to be unnecessary - limited in complexity, inefficient in time spent, needlessly expensive and presents risks not worth the rewards. Some advise that construction knowledge is better left to technology courses and professional internships. Debating the merits and inadequacies of design-build projects in teaching construction skills and processes circumscribes one of the central values: that is, design-build provides an educational platform from which architecture is presented as a complex web of ethical positions and actions.

As the students confront material consequences and physical exhaustion, divergent missions of clients and classmates, and limits of time and money, construction is a vehicle for forging personal definitions of doing the right thing. So rather than attempting to "teach" a predetermined code of conduct, design-build creates situations requiring students and faculty to determine ethical conduct and respond to it. This allows design-build projects to extend their value beyond technical issues. In these projects, concerns for personal risk, public safety and legal liability were weighed against lessons in responsibly reusing resources; improving the quality of the physical and social environment, and honing design skills through the act of making. The Design Center brings together NDSU faculty and students in architecture, planning, environmental graphic design, public and community art, history and culture of cities and other related disciplines to work collaboratively on projects. We also develop a partnership between the faculty and students, design professionals, community groups and institutions, and government agencies to work on design issues of mutual concern in the Midwest.

Fig. 3. Describes philosophical and management structure of PICCED (Pratt Institute Center for Community and Environmental Development).

Students participate in a range of community design work and, simultaneously, broaden their education to make the linkages between theory, practice, and social interests. We instruct them on how to communicate and share their design knowledge with a broad audience, rather than strictly their peers. By working with communities that are under served by the design professions the students are introduced to alternative, democratic design practices and promotes civic responsibility. But even importantly, the students are exposed to the contested terrain of real-world projects. In addition to working collaboratively across design disciplines, the students are able to work with community leaders, public officials, and others who have the power to inform and implement their projects. We encourage the students, with advice from the faculty, to deal with the economic and political problems that come up throughout their work.

While this program has many outstanding benefits there can be some challenges, especially with start up funding. The community partners involved in the program are informed of the students' limited experience, their educational requirements, and the necessary time commitment for student interaction.

The partners often request these services accepting the limitations because the service is often free or at a very low cost to the home owner. And frequently the community partners gain unexpected benefits from the vast range of students' schemes.

Given the mission - design in the service of social justice - we rely on participatory design processes to engage our community clients environmental design decision-making. This participatory method is rooted in the conviction that both our clients and we - as architects, planners, graphic designers, and other design professionals - have the expertise needed to guide effective and socially just design decisions. To support overall informed decision-making, we participate in an educational process that's based on mutual appreciate and understanding of each other's expertise. Our clients most knowledge about their particular situation - the problems included and their future needs. And we have the knowledge about alternative design solutions, most of which are foreign to our client.

Summary

The American economy has become increasingly dependent on advances in science and technology. The research and knowledge behind the science have now become a universal power. Acknowledging this, however, does not diminish the necessity and importance of the arts. Unlike science, the creating and appreciated of art is integral to the fundamental values of democratic principles. The role of the arts is to create and sustain new ways of discovering truth, beauty and the moral sense of a culture. Art should inform the study of science and vice versa. The arts should also hold the same prestige and influence as the sciences. In order to reach our highest achievements it is equally crucial that the arts and sciences have access to the same democratic values, like the freedom of expression and a moral sense. A primary mission of this academic program is to expose the architecture students to the social and physical issues of a community. Primarily what happens through the facility is the construction of community projects.

The NDSU Building Workshop was created to give students hands-on, practical experience with real-life projects withing the Fargo community.

Design Principles. The method of critiquing and grading the students' work is based on internal principles of the place, such as us, durability, and time, instead of strictly on form and appearance. By designing and building simultaneously, back and forth, there is potential for a more sincere product and innovation. This process provided room for experimentation/improvisation, and through this architecture may rediscover the fundamental craft and potential of materials. It brings a sense of outside reality that allows the work to have more relevance toward broader, more public concerns.

The very act of constructing something in this way places higher regard on the act of making itself. Students achieve important lessons by learning to improvise and respond to conditions and materials available. Especially in the fast paced world of today, by slowing down and recognized the potential of a space and the people in it, we remake ourselves to fit the circumstances at hand. The projects are developed by collaborating with others - designers and community members - rather than by our internal motivations. This interactive method forces us to find shared, basic motivations for design.

In the search for characteristics and connections that are outside our past experiences we are able to find form and purpose that are initially foreign; thus, remaking ourselves. It is difficult to achieve this attitude and way of working in the architectural academic setting, but this program/curriculum addition provides promising visions of a highly successful learning environment.

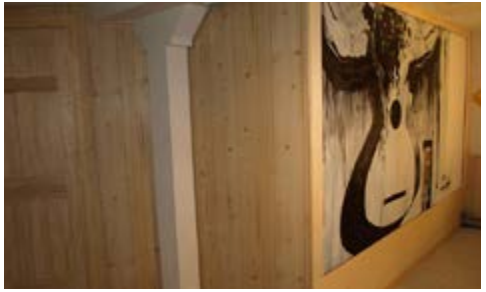
A new confidence surfaces from the context of uncertainties as designers rely on their personal values and beliefs, then reconfirming them in the act of building; which is the critical value of working in public ways. Conceptually, these community homes are able to shape and hold imaginative qualities. By establishing a workspace where many are participating, the projects are truly shaped by multiple and conflicting viewpoints.

Through this kind of work, we have realized how crucial it is to involved the community in the life of the projects, since it is impossible for a design cared for and maintained without a community taking possession of it. Through the process of making these homes, the community is able to find opportunities to re establish their relationships, to see the invalidity of racist viewpoints, and the availability to invent a new shared, public life.

Involving many people in the design decision-making and the construction of the homes supports a powerful case that architecture does indeed matter.

"Those who do not want to imitate anything, produce nothing."

Salvador Dali



Typological Research

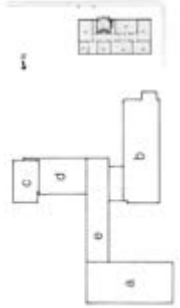
Case Study # 1

Walter Gropius: Bauhaus Building, Dessau, 1925-6

Project Type: University Bauhaus Building
Location: Dessau, Germany
Size: The main floor is just under 12,000 square feet with a second story above 80% of the building.
Characteristic: Greatly influences the program of this project
Program Elements: Workshop, Waving Workshop Library, Studio, Laboratory, Auditorium, Carpentry Shop, Instructor's Office, Exhibition Room, Machine Shop, Paint Shop, Stage.

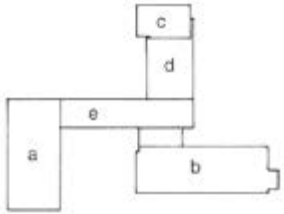
The site plan immediately right demonstrates the *geometry* of the facility as well as the *circulation* of the space. The middle drawing shows the relationship between p*lan and section*. The section also establishes strong *hierarchy* between the various blocks of buildings. The bottom right drawing illustrates *massing* and how the blocks of rooms are arranged.

The perspective below beautifully exemplifies how natural light was able to enrich the space. This is a view of the workshop block (space 'b.' in the massing diagram) seen from the main road. This photo was taken post-restoration.



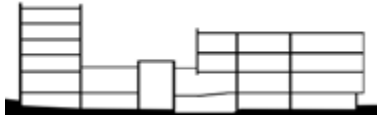
Plan to Section

Hierarchy



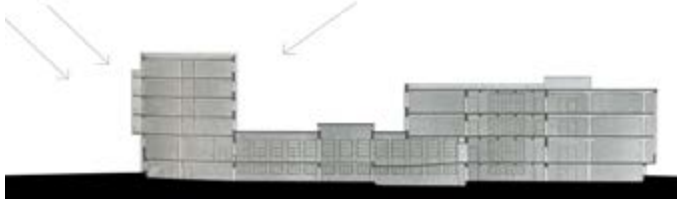
Massing

Cirrculation



Structure

Geometry



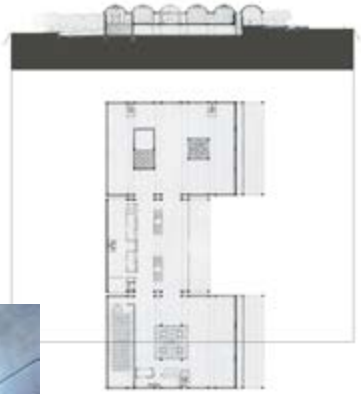
Natural Light

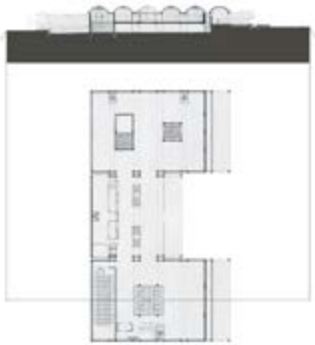
Case Study # 2

Louis Kahn: Kimbell Museum, Texas, 1966-72

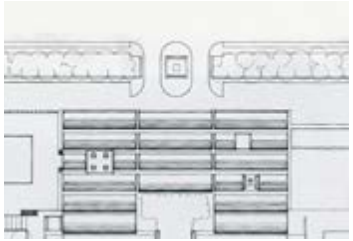
Project Type: Museum
Location: Fort Worth, Texas
Size: The main footprint is just over 7,000 square feet.
Characteristic: The simplicity of the limited materials used combined with the ingenuity and creation of the natural light filter along the ceiling are supportive of my design efforts.
Program Elements: Outer portico, grove of trees, inner portico, gallery, lecture hall, main stairs.

The site map to the right shows the museum and the surround structures, depicting *circulation of space*. The middle drawing compares floor *plan to section,* and also illustrates the *structure* and simply elegant repetitive arches that are the building. Obviously this design is known for its use and dispersion of *natural light*. The diagram on the bottom right explains technically how the lighting effect is achieved. Where the photo below showcases the beautiful effects of the custom design.





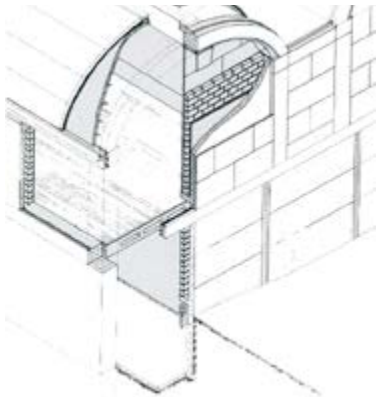
Plan to Section



Massing

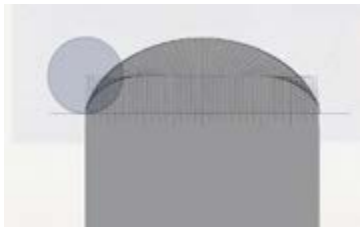
Cirrculation

Structure



Hierarchy

Natural Light



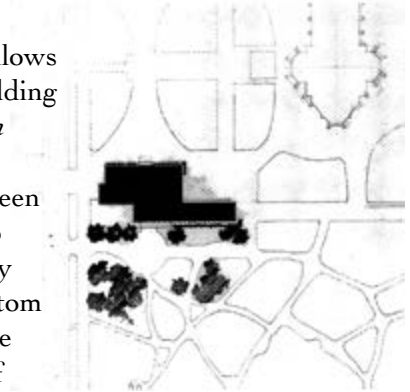
Geometry

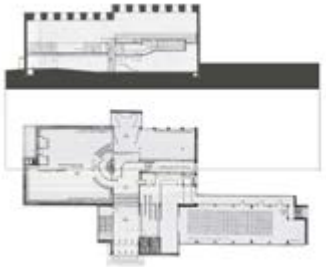
Case Study # 3

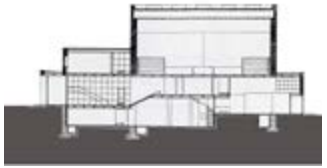
Alvar Aalto: Viipuri Library, Karelia, 1927-35

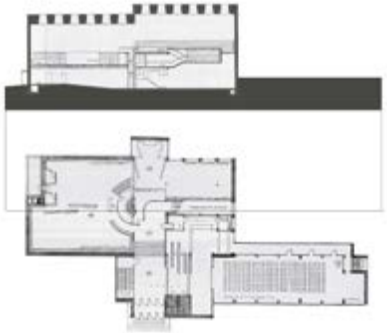
Project Type: Library
Location: Vyborg, Russia
Size: Main floor is roughly 5,500 square feet
Characteristic: Great transition of spaces and beautiful classroom settings featuring natural wood.
Program Elements: Grand stairs, control desk, reading rooms, newspaper reading room loft.

The site plan on the top right allows us to see the *geometry* of the building as well as imagine the *circulation of spaces*. The middle drawing showcase the relationship between *plan and section*. The section also illustrates the *structure* necessary for the roofing system. The bottom right section explores the simple *hierarchy* of raising the height of the space over the staircase; thus allowing it to be the centerpiece of the interior. The two images below compare the designers perceived drawing to the actual built space. Even though the drawing is a bit warmer in color, I think he captures the feeling of the warm wood.

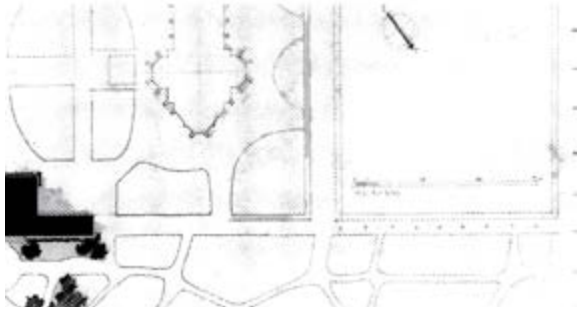




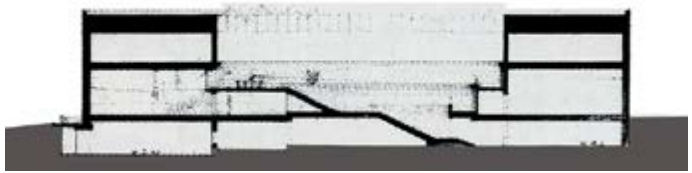




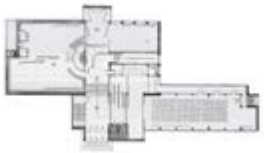
Plan to Section



Geometry



Daylight



Cirrculation

Massing

Structure

Hierarchy

Typological Summary

Each case study has at least one very particular quality that I hope to imitate in order to achieve a full and complete design project. Beginning with the first case study of Walter Gropius' Bauhaus, I found much of the information I was interested in regarding program and curriculum arrangement. Because of this I was able to explore other aspects of structures with different typologies. Even though the overall project type is different than what I intend to produce, I hope that my building will harvest qualities of both a library and a museum; thus making the remaining two case studies very valuable to the project as well.

Like I mentioned above, the NDSU Design Workshop will operate similar to that of the early 20th century Bauhaus. The Bauhaus buildings grew into a modern historical icon because they neatly combined an elite modernist institution with an exemplary piece of modern architecture. For those who tend to see if that way, this process of design fulfilled the promise of having both functionality as well as rationality; and the aesthetic effect, which can still be felt today, would be taken as proof of the students thesis.

After I was comfortable with the program of my facility I began to explore aesthetic and material qualities in case studies that I wish to propel into my own design. Through the readings, I came across Louis Kahn's Kimbell Museum. Even though I had seen this building prior, I was compelled to include it in this project as I could fore see the beautiful application of light this technique could have in my structure. In this museum I love how Kahn elegantly presents the entrance of the building. Due to the even number of 6 repetitive vaulted spaces, the possibility of a central entrance is denied, but by simply leaving vault on the west end open it automatically presents asymmetry; thus leading visitors to the west front. This simple move is something I with to harvest within my own design.

Recently I have found my design solutions to be very gridded and square; I was presented with the question of whether to embrace the grid or explore other avenues. After personal review, for this project I have decided to explore and exploit the idea of gridded square design. I think this notion my stem from the three case studies I chose to explore. Each one of their structures are rooted in a heavily geometrical arrangement.

Not only do I enjoy the aesthetic value of these gridded structures but I also appreciate the structural/mechanical opportunities that present and resolve themselves through the process of establishing grids and columns. Now I am aware that there are many different ways to establish structure in architecture but I feel that for this project grids and columns are very suitable and appealing. And I do feel that even through a gridded design, elements within the building can explore a non gridded approach.

The Kimbell Daylight System: This is obviously the most visually appealing aspect of this case study and I feel that it is a beautiful way to enhance a gallery space. Even though the program of NDSU's Design Workshop is intended to remain small, I do hope to include a gallery space where students work can be on open display. By combining the daylight mechanics with the shape and style of the vaults, through the subtleties and contrasts of spacial sequence the repetitive and systematic structure of the building becomes a secondary observation. I also think this project like most successful ones are derived from a single element: a rectangular vault with columns at the corners .

Kahn is known for his exploration of the appropriate uses of materials and his phrase about asking a brick what it would like to be is often quoted. The following statement directly describes the case of materiality and although lengthy, I feel provides great inspiration to any designer and their project. Kahn states, *"I believe the artist instinctively leaves indications of the process by which an object was created, in architecture as in other arts. The tendency to embellish the exteriors of buildings derived from the custom of hiding their component parts and the manner of their creation. The structures we build should meet all the technical requirements of the spaces they define. False ceilings which conceal the elements of construction tend to destroy the proportion. We need to design in the same way as we build: from the bottom up. The building ought to reveal the materials of which it is made of and the way it was put together. In this way architecture will have the expressive power which comes from method rather than superficial ornamentation. The result of this is that it will not be necessary to doctor the construction with acoustic partitions or artificial lighting, or conceal the ducting, pipes, and wiring."*

This advice is pertinent to all designers but I feel that especially as architects we should take responsibility of creating pure and efficient structures.

Finally, through my research I came across the beautiful Viipuri Library of Alvar Aalton. I felt compelled to include this case in my design research because I was drawn to the subtle hierarchy of spaces that promotes a powerful, elegant and functional common space and stair well. The NDSU Design Workshop will include a small library consisting mainly of instruction videos and pamphlets. But in contrast to many traditional libraries I'm interested in exploring an open space library area; where there are no walls separating itself from the common and central staircase spaces. I'm hoping that this arrangement will encourage design discussion while establishing a location for pleasant daily social interactions. This is important because through personal experience I feel that one can gain more inspiration in a short casual conversation of passing than in a full blown critique session. I feel that this is so due to the fact that the progressive wheels of the design are already in motion when presented with a surprise conversation during passing, where in formal critique the student is often at a mental resting point; thus tending to be slightly overwhelmed with mass of improvement suggestions when attempting to retouch the project.

This is most likely a person study habit that I find enjoyable, but for the duration of this project I and programmed to think that it is possible that many students are interested in learning the way I enjoy learning.

Lastly, the classroom setting found in Aalto's Library are beautifully executed with ample amounts of natural light and extraordinary use of wood finishes. This interior wood working with its tactile appeal, interesting joinery techniques, and gorgeous natural finish brought warmth to Modernist design that was lacking in the cold machine-art of the Bauhaus's. It is apparent that many technical details were thoughtfully conceived from the display of custom ergonomic doorhandles to the advanced heating system of the building. This case shows the way in which Aalot absorbed the influences of his predecessors and that masters that came before them, then as every student should, freed himself to set off on his own.

This design advice is very relevant to the place in time I currently find myself in. While plagiarism is an obvious concern, we must not be afraid to emulate. Because imitation is the best practice we can achieve.

the History

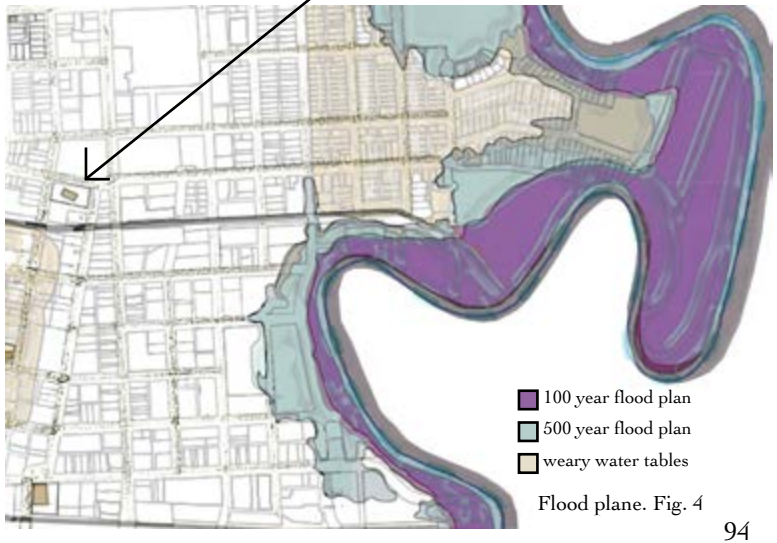
Fargo Historical Context

According to a community website, the city of Fargo was founded in 1871, when the first settlers claimed homestead land at the point where the Northern Pacific Railroad would cross the Red River. The city was named after a director of the Northern Pacific Railroad, and co-founder of Wells Fargo Express Company, William G. Fargo.

In 1876, the population of Fargo was only 600 people but the city grew rapidly as more settlers were drawn to the area by the promise of cheap, fertile farmland in the Red River Valley. By 1893, Fargo had grown to a city of more than 8,000 inhabitants.

On June 7 1893, disaster struck the steadily growing city. A fire ignited on Front Street (now Main Avenue) and was spread through the town by the strong south winds. By the time it subsided, more than 31 blocks were reduced to piles of rubble. Even though this was probably a stunning set back to the city, the Fargoans of the time resolved to rebuild. Less than a year later, 246 new buildings were erected, many of which still exist today; the post-fire city became more attractive and substantial due to the unified construction and the newly developed downtown area.

Fargo is located in the Red River Valley. Due to flat terrain the issue of flooding is common and has historical tendencies to be destructive. On the map below the Red River is depicted with a solid gray line. The 100 year flood plan is shown in purple with the 500 year plan depicted in light blue. The blocks of light yellow show areas where the water tables could affect the basements of homes. But as you can see the potential site for NDSU's Bauhaus is risk-free.



Flood plane. Fig. 4

History of the Bauhaus

Phase 1: Weimar, Germany. The first location of the Bauhaus was in the School of Arts and Crafts in Weimer. Architect Walter Gropius reorganized Henri Van de Velde's ideals and opened the school in 1919 under the name Bauhaus School of Design. "Let us create a new guild of craftsmen without the class-distinctions that raise an arrogant barrier between craftsman and artist!" The Bauhaus manifesto proclaimed that the ultimate aim of all creative activity is "the building". Despite a successful first exhibit the school was seen as too liberal by the city of Weimer and was forced to leave.

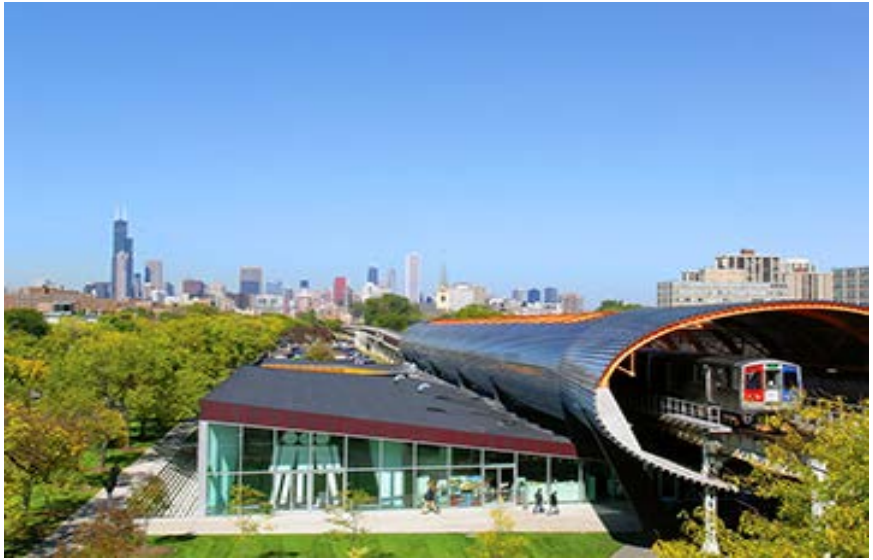
Phase 2: Dessau, Germany. A modern building complex was erected out of concrete, glass, and steel. Gropius designed classrooms, dormitories, and faculty housing that were grouped in a complete artistic community. In response to past criticisms of the school's curriculum, Gropius emphasized the merging of the arts and industry with studios that produced textiles, home appliances, accessories and furniture. Gropius was then removed due to his political views and replaced by Ludwig Mies Van der Rohe. In an attempt to eradicate the subversive elements in the student body, Mies expelled all of the students, then only readmitted the ones who were deemed politically acceptable. The school was forced to close in 1932 but to the rise of the National Socialist Party (Nazis).

Phase 3 - Berlin, Germany. In 1933, the Bauhaus briefly moved to Berlin but ultimately had no chance to re establish. In 1979, Gropius designed the Bauhaus Archive to be built in West Berlin. In 1997 the building was placed under historical protection and has been completely renovated under unified Germany. Currently all 3 locations have been turned into museums.

And important phase to this program is the idea and production of typography. This is historically relevant because it in 1923 Professor Moholy-Nagy brought new ideas about the use of typography to the Bauhaus. Nagy consider typography to be a primarily a communication medium, and was concerned with the "clarity of the message in its most emphatic form." He combined text and photography into interrelated compositions of pure communication he dubbed "Typofoto". I feel this to be one of the most essential skills available at this school. As designers we are gifted with the ability to create productions that speak to

speak to people through the avenues of images and select choice words. This is a skill that was relevant 60 years ago and will continue to be necessary as long as this profession exists.

The spirit of the Bauhaus was founded in the United States in 1937. Laszlo Moholy-Nagy moved to Chicago in 1937 and named the school The New Bauhaus. The overall philosophy of the new school was unchanged from the original. However, in 1938 the school briefly closed due to financial problems. Shortly after its closer, Walter Paepcke, Chairman of the Container Corporation of America and early champion of industrial design in America, soon offered his personal support. In 1939, Moholy-Nagy re-opened the school as the Chicago School of Design and in 1949 it became part of the new Illinois Institute of Technology University system making it the first institution in the United States to offer a PhD in design.



Shown above is ITT's student union tucked under the sound muffling train bridge tunnel.

my Goals

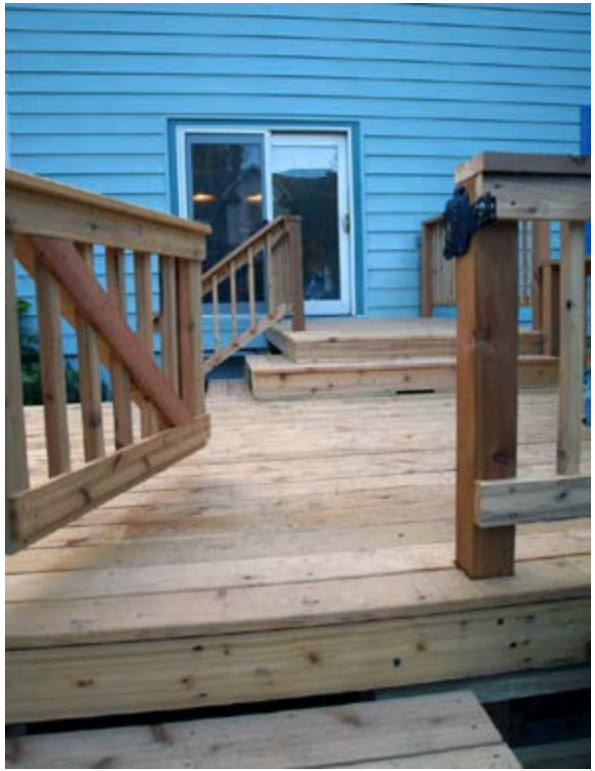
Thesis Goals

Throughout the duration of this course I hope to successfully complete and submit a project deemed worthy of a passing grade en route of the reception of a M. Arch degree. There are many possible characteristics that promote good design but I have a personal tendency to concentrate on the product manifested. I thoroughly enjoy the craft and construction of artifacts and one to one scaled objects. While it is important to indulge in the activities I enjoy, it is also critical to practice the avenues of design that are more foreign to my method of practice. For example, I hope to find successful results upon experimenting with watercolor rendered perspectives. I have always enjoyed the appearance of water colored architectural drawings and I think they can be successful in communicating with a broad audience. The part I find difficult when faced with the task of producing a thesis project is being able to find the balance between the actual process of design and means of representing those design solutions. I would say, personally I am stronger in the act of representation than I am with the process of design. Thus promoting me to again find balance between the strongest and weakest points of my design skills.

Along with the expectation of a professional and complete thesis presentation, I also have plans to renovate my existing house. This correlates with the program of NDSU's Design Workshop in the sense that I am actually partaking in construction activities similar to those that the hypothetical students face in this project. The act of doing this allows me to deeply involve myself in the development and production of this thesis structure. By linking the hypothetical project to a real world setting, I am able to justify various aspects of my design with real-world problem solving methods. So, the construction goals I have planned for the remainder of the year are:

- rebuild backyard fence
- refinish kitchen cabinets
- install built in shoe/clothing storage
- create a TV entertainment system
- establish a functional efficient DVD storage device.
- finish the attic space for an additional lofted 'room'

These construction projects will aid and influence the tectonics of NDSU Design Workshop.



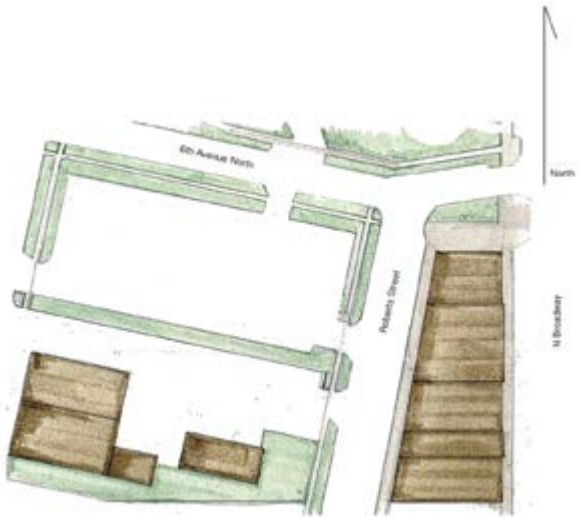
The deck railing and trim boards were de-nailed and planed for re-purpose.

This project has been a work in progress since I moved into this house my sophomore year. I am grateful to have the opportunity and availability to learn and use tools of every kind. I feel that the confidence built up during the comprehension phase of learning a new skill is very beneficial in any and every practicing field. It provides us with the urge and ability to just do, instead of critically over analyzing. By simply doing, the student is able to absorb knowledge to tactile and relatable objects. By having two points of understanding, both text and artifact, the students are prompted to retain the particular skill much more successfully. This ties back to our primitive mode of learning. As I grow older I have the opportunity to observe and interact with brand new babies being introduced to the world for the first time. It is simply in our human nature to feel compelled to pick up an object of interest and attempt to understand it. This compelling urge is less apparent when the information is presented in the written for as compared to a manifested one-to-one object. Ultimately, I strive to complete a fully understandable and comprehensive design solution that is represented and presented if the most efficient and aesthetically pleasing way.

the Site

Site Analysis

downtown Fargo, North Dakota



Located on the corner of 5th Ave N and Roberts street in downtown Fargo, this empty parking lot provides adequate space and loading/delivery access.

Narrative

Climate: Due to its location in the Great Plains and its distance from both mountains and oceans, Fargo has a humid continental climate, along with a USDA Plant Hardiness of Zone rating of 4. The city features long, cold, windy and snowy winters, with temperatures falling below zero degrees roughly 48 nights per year, and occasionally dropping to -20 degrees. The averages snowfall per season is roughly 45 inches. Spring and fall tend to be short with many variables. Fargo summers and warm frequented by thunderstorms; which high temperature possibilities of 90 degrees roughly 13 days each year. Annual precipitation of 21 inches in most often concentrated in the warmer months. One unfortunate seasonal characteristic that Fargo experience is lack of daylight during their winter months. From November to January, Fargo sees less than 140 hours of sunshine a month. This can make the season very long and depressing; thus making it a priority in the design world. If structures were designed for these dark months, some of the tension the cold brings could be released by specific functions of the local architecture. For example, instead of relying largely on daylighting to provide ambiance restore the exploration of artificial lighting that can act similarly.

Map: Below shows an areal image of the projected site. This image depicts a structure on this site, but recently the building has been demolished, leaving a flat paved parking lot open to interpretation. The webbing of lines provides a visual connection between the geographical location and the view it provides from each intersecting corner of the site. The surrounding buildings are positioned far enough away to where they do not impose on the accessibility of natural light to the site. St. Mary's Catholic Church complex is location directly north of this site; consisting of multiple large structures the view to the north is greatly diminished.

NW

NE

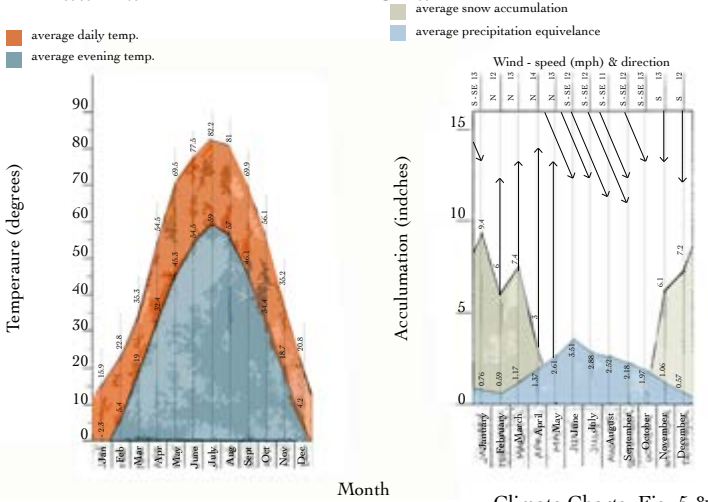
SE

SW

Site Characteristics

The views on the previous page were obviously captured in the warmer sunny months of Fargo. For the production of this project I intend to depict the structure in the colder, snowy months. I feel that this is the time of year where a stable, comfortable, and functional working environment can relieve seasonal symptoms of depression and anxiety. Even though many humans don't treat themselves for a seasonal disorder, many of them experience symptoms related to the lack of natural light and vitamin D. Understandably it is difficult to replicate the sense and feeling of sunlight so instead I will attempt to create a structure that promotes winter living. For example a very difficult aspect of transporting school projects and even simply ourselves during the winter is the process of maintaining warmth. Personally this act consists of various layers of clothing combined with hats, scarves, gloves, and boots. Because of this clutter, transportation is deterred due to the thought of lack of space and messiness of snow and water. To resolve this I propose a extended coat room that is located near the main entrance and visors are encouraged to check all their winter gear, promoting organization and neatness.

Diagrams: The figures below depict the average monthly temperatures, precipitation and wind direction in Fargo. The bottom-left diagram shows the average daily high temperature of each month in orange with the average nightly low temperature in blue. Temperatures can be extreme in Fargo ranging from 90 degrees in the summer time to sub-zero temperatures in the winter months. The diagram on the right shows the average monthly snow fall in gray with the precipitation (rainfall) equivalence in blue. Average monthly wind direction and speed is shown in the upper portion of that same graph.



Climate Charts. Fig. 5 & 6

Fargo Geology

Vegetation: Even though Fargo is known for its extreme temperatures and weather conditions it has always been recognized for its fertile soils and farming availability. Much of the vegetation found throughout the city as well as this site were established by human interaction. The Midwest is known for its unobstructed multiple mile views, but this notion establishes the fact that there is very little vegetation in the general area.

Water/Water Tables: As mentioned before, Fargo is located in the heart of the Red River Valley. Even though the river is not visible from the site, it does reside only 6 blocks east. Fargo is known for its seasonal flooding and while many downtown properties are affected by the level of the water, both above and below ground, this particular site resides in a flood free zone. Even though the risk of foundation flooding has been reduced the facility will still face difficulties during the flooded weeks of Spring, like power outages and transportation detours.

Wind: Another harsh characteristic of Fargo is its cold winter wind. Many days the wind chill reduced the temperature up to 20 degrees. This site is exposed to much of the bitter qualities of these winds without much existing shelter.

Extreme weather conditions expose Fargoans to a variety of daily commute obstacles

I have intentions of designing the structure to provide coverage from the brutal winds in hopes to achieve a more pleasant inhabitance.

Human Characteristics: Like I mentioned prior, this site was initially a Hardees restaurant and after its demolish it became overflow parking for the St. Mary's Church. Through this transition of usage human interaction has yet to cease. This site with initially constructed by and for human industrial activity. Industrial being a mass producible chain restaurant. Now as the site sits, humans interact with it very little besides using it for parking space onces a week. In order to compromise and avoid arguments I intend to allow the church to continue to use the lot for parking, since class in not in session on Sundays there will be no conflict of space and interests.

Distress: Besides the act of demolition, the site is maintained and remains in good condition. As of now the property is owned and kept up by the city. The trees and grass in the boulevards are healthy and useful.

Soils: There are 8 distinct soil types recognized and mapped throughout the Fargo area: Marshall clay, Fargo clay, Miami black clay loam, Miami loam, Marshall gravelly loam, Marshall loam, Wheatland sand, and Wheatland sandy loam.

Soil Table. Fig. 7

Soil	*Acres*	*Percent*
Marshall clay	76,800	29.6
Miami black clay loam	74,880	28.8
Fargo clay	40,000	15.4
Wheatland sand	29,504	11.4
Wheatland sandy loam	16,768	6.5
Miami loam	11,968	4.6
Marshall loam	7,168	2.7
Marshall gravelly loam	2,688	1.0
Total	**259,776**	

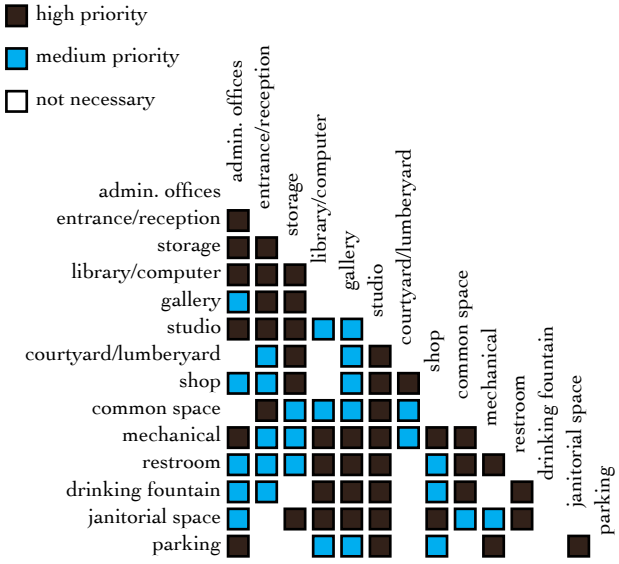
The table above shows the area of several soil types in the area. The area surveyed comprises that of a typical section of the Red River Vally. Fargo has an altitude of 900 feet and for the first 15 miles heading west there is only about 3 feet rise in elevation.

Whether this is a pleasant characteristic or not, the fact is that the Red River Valley is remarkably level. The river itself flows along the lowest portion of the plain and is quite sluggish and meandering in its course. For the first 10 or 15 miles both east and west of the stream the land rises imperceptibly; roughly 1 foot for every 5 miles.

the Requirements

Programmatic Requirements

Major Program Elements	*Estimated Sq. Footage*
Entry/Reception	400 sq ft
Administrative Office	600 sq ft
Storage	1200 sq ft
Library	1000 sq ft
Gallery	800 sq ft
Studio	800 sq ft
Courtyard/Lumberyard	2000 sq ft
Tool shop	1500 sq ft
Common Space	500 sq ft
Mechanical	400 sq ft
Restrooms/Drinking Fountain	600 sq ft
Janitorial Space	600 sq ft
Parking	remainder of the lot
Total	**10,400 sq ft**



Spatial Planning. Fig. 8

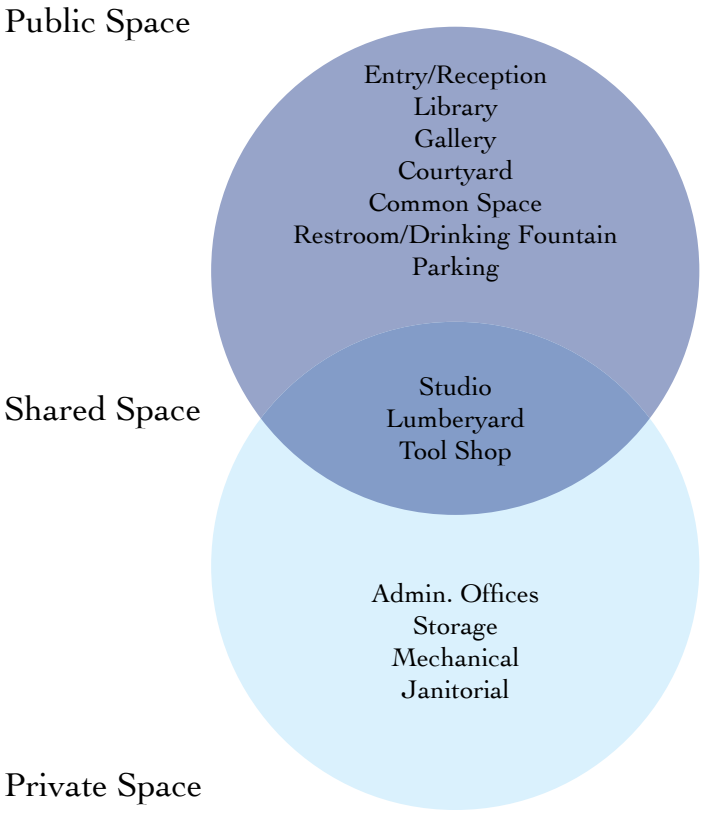


Fig. 9. Separation of Space

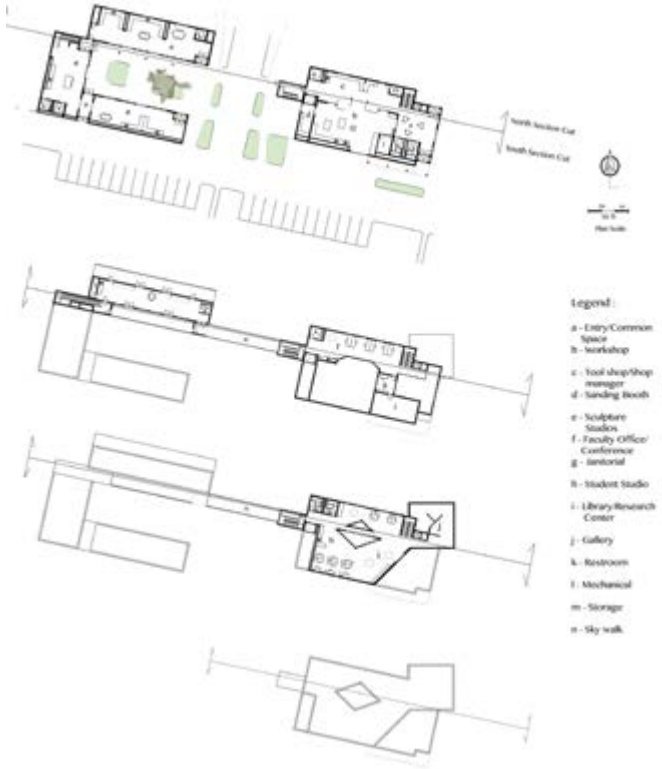
The NDSU Design Workshop facility will be a simple, interwoven space; meaning that many of the program elements will merge together. For example the gallery space may be located within the studio or vice versa. Rooms will be correlated and combined based off their use of materials in the space. Blocks of rooms will be grouped together by similar activity to accommodate janitorial and mechanical maintenance necessities.

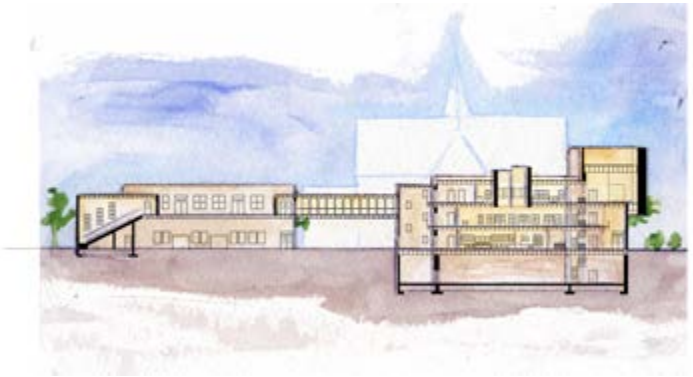
I have hopes that this structure will be able to accommodate many projects and production techniques. I think ultimately this is where the design challenge lies: attempting to create a building that is both particular to the program but can be versatile in its use. The space needs to allow for flexible arrangement of furniture along with the possibility of the flexible arrangement of the walls as well. Possible garage door like openings may allow for a design like this to be practical and efficient.

Ultimately. ability to function properly and circulation of space are the most important elements when initiating my design approach; but as with most architecture students I would imagine, I hope to find a pleasing balance between this and aesthetic appearance.

the Final Project


6th Street North
6th Ave North
North Section Cut
South Section Cut
Roberts Street


North Section Cut
South Section Cut
Legend :
a - Entry/Common Space
b - Workshop
c - Tool shop/Shop manager
d - Sanding Booth
e - Sculpture Studios
f - Faculty Office/ Conference
g - Janitorial
h - Student Studio
i - Library/Research Center
j - Gallery
k - Restroom
l - Mechanical
m - Storage
n - Sky walk



the Resources

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"Encapsulate the spirit of melancholy. Easy. Boom, a sad desk.
Boom, a sad wall. It's art. Anything is anything."

- Ron Swanson
television series *Parks and Recreation*
(actor) Nick Offerman