

URBAN
TYLER

INFRASTRUCTURE
BUERKLE

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

By

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

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Primary Thesis

Advisor

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Thesis Committee

Chair

May 2014

Fargo, North Dakota

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This thesis project, Urban Infrastructure, provides answers to the question, How can a city's systems and infrastructure influence its architecture? The building typology used to examine this question is a 75,000 sq. ft. city hall located in downtown Fargo, ND. The unifying idea of this thesis is to strengthen the sense of place through design by examining the basic components of the city. This project is justified because creating a sense of place based upon the urban environment ensures that the building will be designed specifically for the city.

KEY WORDS

Urban Environment
City Hall
Sense of Place
Connection
Reflection
Infrastructure

PROBLEM

STATEMENT

How can a city's systems
and infrastructure influence
architecture?

STATEMENT
OF
INTENT

STATEMENT

OF INTENT

PROJECT TYPOLOGY

City Hall

SITE

Fargo, North Dakota

CLAIM

Architecture can be derived from the basic building blocks of the given city.

PREMISES

ACTORS

The basic infrastructure of a city is designed to make travel patterns as functional as possible. Applying the same tactics on a small scale, such as a building, would allow people to move throughout the building in the same manner.

ACTIONS

Architectural designs based on the city's infrastructure creates a sense of place. "Cities are form makers, and urban design should astutely recognize indigenous forms that have reached some kind of perfection" (Sorkin, 2001).

OBJECT

City Hall is where decisions for the city are determined and it should accurately reflect the urban environment. "City officials agree: the decades-old City Hall here is cramped, outdated and failing" (Burgess 2013).

UNIFYING IDEA

A sense of place can be achieved by deriving architecture from the systems and infrastructure of a given city.

JUSTIFICATION

Sense of place is important to a city because it gives the place character and uniqueness. Architecture based on the city's organization strengthens the sense of place and becomes a land mark and representation of the city. If a city is functional, then architecture based on the city's systems and infrastructure will also be functional. A city hall is a perfect building to reflect the city because it is the core of the city.

THE PROPOSAL

This thesis examines how a city's systems and infrastructure influence architecture through the design of a new city hall for Fargo, North Dakota. Creating a sense of place is crucial for a city because it becomes an identity or even a feeling of the city. A city hall is the perfect typology to evaluate this thesis topic because it is arguably the most important building in the city because of its importance to the city as well as its connection to the people.

Why is sense of place important? Sense of place is derived from the unique features that give a place character. Sense of place is an identity for a space and it draws people in. It is something for people to take pride in and strengthens the connection of the place and its inhabitants. Sense of place comes down to the overall vibe of the space. This identity is usually derived from the existing environment. A space is developed, things are constructed, people visit the site, and an opinion is formed about the site, thus giving it a sense of place. I think that by reversing this method of design, we can create stronger architecture by using what is given and really embracing a sense of place. By using the sense of place that has already been created as a source of design inspiration, the architecture will suit the area as well enhance the sense of place that people already cherish. People connect with the identity of a space, so why not embrace that sense of place and celebrate it through architecture?

Why a city hall? A city hall is a very important building in any society. This building typology has to represent the city because it is the foundation of the city. It makes sure that the city is functioning properly. City hall provides a place where all citizens can go and voice their opinions about the city and what they think needs to be done to improve the existing conditions. The most important function of city hall is to make decisions for the city so why shouldn't the building represent the city?

USER

DESCRIPTION

CITY COUNCIL

The city council members will be the primary users of the facility as they are there everyday. This group of people includes the mayor, commissioners, board members, and other city officials. Hours of operation are typically 7:45 am to 4:30 pm. The building is owned and operated by the City of Fargo but this group of people is generally considered in charge of daily operations.

PUBLIC

This building is open to the entire public and is a place where people come to voice their opinions. Typical guests will be local citizens with a complaint about the city. The building needs to be designed for the citizens and accommodate a diverse group of people .

GENERAL STAFF

General staff needed to for the venue include security guards as it is a government building, janitors and event staff. Functions of the city hall and connected civic center change daily thus number of people required to staff the complex changes daily. Hours of operation may vary.

PROJECT

ELEMENTS

CITY HALL

The basic components of a city hall are offices and board rooms. Offices are required only for the permanent staff members such as the mayor and the city commissioners. Board rooms are the places where decisions get made. A number of board rooms varying in size are required because of number of different groups meet each week to discuss current issues of the city. Some groups require a small space whereas some meetings need to accommodate for more.

CIVIC CENTER

The civic center is an important cultural feature of the city hall. This space has the ability to be transformed to host any sort of gathering or event. Functions of a civic center range from trade shows which require vast amounts of open space to small concerts which need isolated seating and a stage.

PARKING

A parking ramp is an ideal situation for my chosen site. Reserved parking is needed for permanent employees as well as parking for the general population. The amount of public parking that is required is based upon the days events. A parking ramp is the best choice because it meets a city hall's basic needs for parking when a major event is taking place and when minimal parking is required, the ramp can be opened up and used for the rest of the downtown neighborhood.

SITE

MACRO

REGION: MIDWEST



FIGURE 2- Institute of International Education , 2013

LOCATION: FARGO, ND

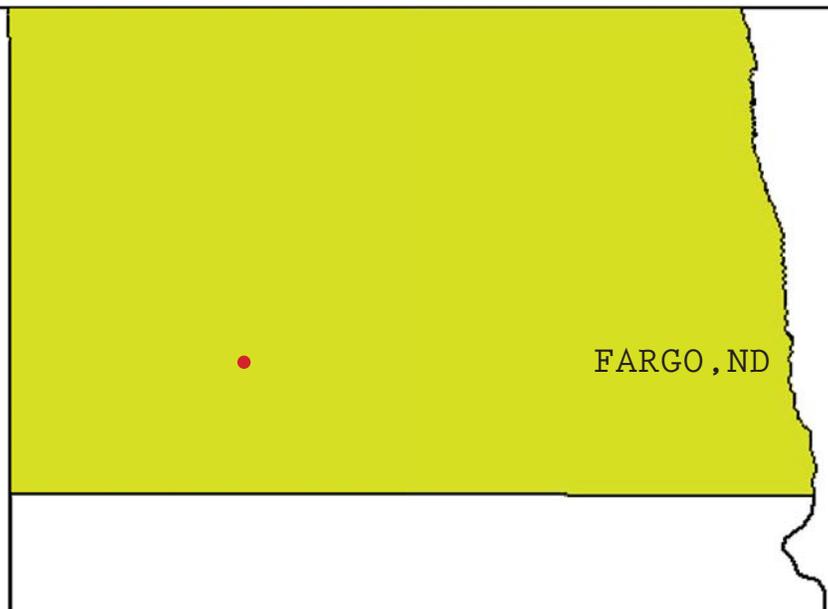


FIGURE 3- T.Buerkle , 2013

SITE

MICRO

DOWNTOWN FARGO

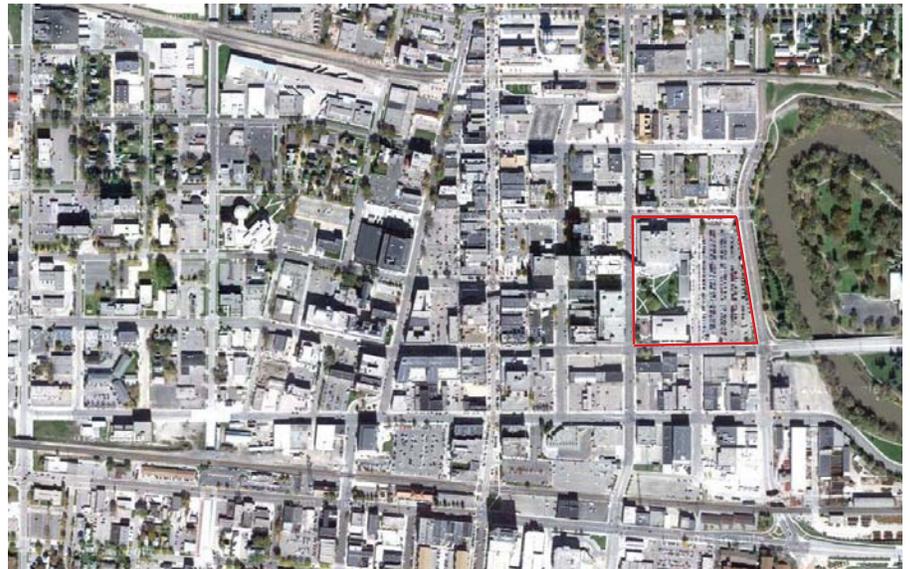


FIGURE 4- From Google Maps , 2013

ADDRESS:
200 3rd St. N
Fargo, ND 58102



FIGURE 5- From Google Maps , 2013

MIDWEST REGION

This region has a relatively low population density compared to the other regions of the U.S. The general area is flat, influenced heavily by the elements and has a strong connection to nature and the natural environment.

DOWNTOWN FARGO

Downtown Fargo is considered to be the heart of Fargo. It has potential for living, working, shopping, eating and much more as well as being an extremely walkable neighborhood. This area is highly influenced by the public and is easily accessible for the majority of the citizens. Downtown Fargo is really the embodiment of Fargo itself.

CURRENT SITE

As of right now, the site is home to Fargo's city hall but it has become outdated. The key features on the site are the city hall, a civic center, and a massive parking lot. The site is located on the edge of downtown Fargo and is very close to the Red River. Although the site is located in the downtown area, it also contains a plaza/park that needs to be preserved or even enhanced.

The emphasis of this thesis project is to show how important sense of place is through architecture. This will be accomplished by studying the current conditions of area, interpreting the characteristics that make the place unique, and using those features to inspire architecture. The goal of this thesis project is to strengthen the sense of place by designing with it. This project will take unique characteristics and intensify them through a work of architecture.

PLAN

FOR PROCEEDING

RESEARCH DIRECTION

The reason behind the research for the project is to gain a better understanding of the importance of “sense of place”. The research will be focused on developing a more thorough theoretical premise/unifying idea, elaborating on the building typology, the historical context, determining why my site is best, and developing a proper program.

DESIGN METHODOLOGY

The research will be conducted through a mix-method approach by combining qualitative and quantitative analysis. A concurrent transformative strategy will be used to collect and evaluate research results. Analyzation and interpretation of the data will be continuous throughout the research process and findings will be documented through the use of text, graphs and diagrams.

DESIGN DOCUMENTATION

This thesis project will be documented daily throughout the design process. Weekly documents will be created and stored digitally showing how the project has advanced from one stage to the next. All work will be created digitally, scanned in, and/or pictures taken to preserve work. All of the work will be saved in multiple places and a hard copy of the final book/project will be printed multiple times in case of computer problems. This project will be available in the NDSU repository for future students to reference.

DESIGN

SCHEDULE

Project Documentation 1/13 - 4/30
 Conceptual Analysis 1/13 - 3/10
 Context Analysis 1/20 - 3/10
 Spatial Analysis 1/27 - 3/10
Floor Plan Development 1/29 - 3/10
 ECS Passive Analysis 2/5 - 3/10
Structural Development 2/10 - 3/10
 ECS Active Analysis 2/17 - 3/10
 Section Development 2/17 - 3/10
Envelope Development 2/24 - 3/10
Materials Development 2/27 - 3/10
 Site Development 3/6 - 3/10
 Midterm Review 3/10 - 3/14
 Project Revisions 3/24 - 4/4
 Renderings 3/27 - 4/18
Preparation for Presentations 4/14 - 4/18
 Presentation Layout 4/18 - 4/24
 CD Due to Thesis Advisers 4/24
Plotting and Model Building 4/24 - 4/25
 Exhibits Installed 4/28
 Thesis Exhibit 4/28 - 4/30
Final Thesis Reviews 5/1 - 5/8
Final Thesis Document Due 5/16
 Commencement 5/17

PREVIOUS

EXPERIENCE

SECOND YEAR

Fall 2010-

- Joan Vorderbruggen
- Tea House
- Boat House

Spring 2011-

- Darryl Booker
- Montessori School
- Birdhouse
- Dwelling

THIRD YEAR

Fall 2011

- Mike Christenson
- City+Museum

Spring 2012

- Milton Yergens
- Agricultural Research Facility
- Urban Infill- Micro-Brewery

FOURTH YEAR

Fall 2012

- Cindy Urness
- High Rise
- DLR Competition

Spring 2013

- Paul Gleye
- Semester Abroad
- Kempen Eilandje

FIFTH YEAR

Fall 2013

- Regin Schwaen
- ReGEN Boston Competition

THE PROGRAM

A sense of place can be achieved by deriving architecture from the systems and infrastructure of a given city.

Architecture should represent sense of place rather than create it. It is inspired by the surrounding environment, culture, and people that inhabit the space. Architecture is a reflection of the city and so it needs to be designed specifically for its city. Using the city itself as a source of inspiration and reflection, architectural designs become well-thought out ideas created specifically to highlight certain features of the city. Infrastructure is rarely one of the highlighted features because it generally goes unseen but it is still one of the most important components to any city. It affects so many different aspects of the city that architecture should recognize its importance and be derived from it.

In order to derive Architecture from the basic building blocks of a city, we first must understand how a city is put together and what the fundamental pieces of construction are. Urban design as defined by urbandesign.org "is about making connection between people and places, movement and urban form, nature and the built fabric." Urban design is about making connections in all phases of life. It involves all of the design disciplines to combine their knowledge and skills to create

a united community in which members from all social classes and economic backgrounds are designed for. Urban design is used to create a cohesive environment that is both functional and uniquely beautiful. It influences design work on projects of all shapes and sizes from entire cities all the way down to singular streets (Urbandesign.org).

Large scale urban design tactics are used to design and coordinate a city through buildings, public spaces, streets, transportation methods and landscapes. The process of integrating these different urban elements requires architects, landscape architects, urban planners, and engineers to all work together to create and connect a variety of spaces. Buildings and public spaces are typically destination spaces while streets and other transportation methods make the connections between them. Landscapes fill in the gaps and provide the area with character. Landscaping makes the spaces and the connecting areas more personable and strengthens the connections between buildings and public spaces (Sorkin).

The above urban elements are what create the city but they still have to have access to basic necessities in order for them to function properly. The network of elements needed is called infrastructure. Infrastructure, as defined by the Merriam-Webster Dictionary, "the

underlying foundation or basic framework of a system or organization” as well as “the system of public works of a country, city, or region.” According to the President’s Commission on Critical Infrastructure Protection (PCCIP) transportation, oil and gas, water supplies and distribution, emergency services such as police, firefighters, and ambulances, government services, banks, electricity, and communications are the basic elements of infrastructure. Without these basic functions and services, society wouldn’t be able to function properly. Infrastructure is generally hidden from public or buried underground and is usually taken for granted. There is a vast system of pipes and sewers underground that simply go unnoticed in everyday life. Water, natural gas, and electricity allow us to live comfortably in our homes with very little work required to do so. Roads, sidewalks, bike paths, airports, trains, and other railways connect us to other parts of the city as well as the rest of the country. Urban design creates unique spaces but we need infrastructure in order to get out and experience it. Telecommunications, internet, and other digital resources allow us to stay connected to the rest of the world. Infrastructure is the backbone of society and without it we are nothing (Misa).

The process of implementing, expanding, or upgrading infrastructure is based upon

whether or not it is beneficial to the public. A variety of data is collected regarding the city and how it functions and then the data is analyzed and interpreted. The analysis outputs determine whether or not projects are beneficial. Typical input data includes demographics, community consultation, location, service requirements, assets assessments, site opportunities, and funding. The data is then analyzed based upon the communities need, accessibility, project management, and financial responsibility. Then community needs, asset capacities and project feasibility are all taken into account to determine whether or not a project should be carried out and what options there to solve the given problem. If a proposal is deemed beneficial to the community, financially feasible, and easily accessible, the project is put into motion (City of Melbourne 3-10).

Urban Design is about making a connection to a space and enhancing the experience. The characteristics that a space exhibits or lacks are what create a sense of place. These characteristics are things, whether physical or mental, that allow people to connect to the space. Every space has a feeling to it; a certain way that the space is being perceived. This perception can be a positive or negative reflection of the given space. Perception is determined by how we connect to the space, how we feel in the space, and how

we sense the space. The main senses to come into play when determining a sense of place are sight and sound. Sight and sound are used to gather an initial perception of the space. A reaction, whether positive or negative, to a given space happens as soon as it is entered. Initial judgments are made based on what can be seen and heard and the initial perception of the space will change as more time is spent exploring it. Typical characteristics that are used to create a sense of place are light and shadow, colors, sounds, and proportion and scale. Common objects or features of a place that give it character include a water source, vegetation, calming sounds, activities, and connections with other people. Developing a strong sense of place is crucial in order to create a connection between the people and the space (Holl).

Why is sense of place important? Sense of place is how we interpret and understand our relationship to the given environment. We perceive the given space and then we react to it. We become connected and attached to places that bring out strong emotional and thoughtful responses (Meyer). The overall sense of any given place needs to appeal to a variety of people in a community atmosphere. A strong sense of place gives off an initial perception that is simply understood. But as the perceiver stays in the space longer and longer, more is perceived. Our understanding

of the space becomes clearer and our connection becomes even stronger. Sense of place is a thought or feeling that people can identify with and be proud of. Sense of place is more than just a feeling or an emotion; it is a representation of the community. It has the ability to bring people together over common interests. "To some degree we create our own places, they do not exist independent of us" (Cross). Sense of place combines the physical characteristics of the site as well as the social interactions among its occupants to create the overall feeling. A positive sense of place will allow people to easily connect with the space and want to visit more frequently. Communities that represent the space and a space that represents the people makes for a cohesive environment that people want to be around (Cross).

City hall is defined by the Merriam-Webster dictionary as "the building housing the administrative offices of a municipal government." City hall is home to the mayor, city commissions, city engineers, and other government or city-controlled entities. City hall is the building that has control of the given city and makes decisions concerning it. The municipal government is elected by the citizens of the area to represent the people on the city's behalf (City of Fargo).

"City halls and civic centers are the

hearts of our cities. In them, we need to feel at home in our world. We need to hear the heartbeat of our communities” (Fentress 10). City halls are important to the community and its residents because it represents the city. All citizens of the city have the right to go to city hall and voice their opinions, raise questions and concerns, and discuss current problems that the city is having. This building gives power back to the people. It allows people to change the city for the benefit of its residents. People have the power to change the image of the city so that accurately reflects the community (Understanding Local Governments). City buildings need to validate the importance of human experiences represent a government for the people. They need to reach out to individuals, take into consideration a variety of perspectives, and affirm that the people are in control. Civic buildings should create environments that nurture and convey an understanding that citizens matter (Lyndon 16). “Civic buildings should not make private citizens realize how unimportant they are but instead create a public architecture of intimacy, one that brings people together in an experience of confidence and trust. Architecture reflects the relationship of people to government and can tell us much about the nature of the rules and the rulers of a given political order” (Moynihan 11).

The style in which a majority of civic

or government buildings were designed in was neoclassical. Neoclassical architecture began in the mid-18th century and emphasized symmetry, large scale, planar qualities, simple geometric forms, use of columns, and blank walls. It emphasizes the importance of individual spaces rather than a series of interconnected rooms and hallways. This architectural style is the prominent style for government buildings due to the time at which it began. The movement began around the 1750's, a time when the United States was trying to establish itself as a country. The most important building for each community in the states was a civic building for citizens to voice their concerns, unify their ideas, and essentially govern themselves, thus justifying independence from England (Encyclopedia Britannica). Neoclassical design represents the idea of probity, responsibility, and rigid regulation. The goal of such architecture was to awe and inspire but what actually happened was a feeling of smallness. The daunting nature of the architecture overshadowed the visitor and alienated them to the point that they didn't want to be there. "A building like this seems to say that the people are here to serve the government and not the other way around" (Fentress 7).

Research was conducted and analyzed in a manner that opened new doors for this particular thesis project. Solutions to previous problems were solved, light was shed onto new problems and initial thoughts, concepts, and ideas were explored and reinforced. Allowing architecture to be driven by the existing essence of a place leads to strong, thoughtful, and connected architecture. This thesis project looks to explore the concept of using a city's infrastructure to inspire architecture via a city hall. In order to do this, research was guided to first understand a city and how it works, then geared to discovering why sense of place is important and finally the importance of a city hall.

Understanding a city and then drawing inspiration from it is the foundation of this thesis project. Urban design is essentially the layout of a city and the ways to move about it. Movement throughout the city is important to understand but understanding how a city works and functions is just as important if not more.

The main goal of urban design is to make connections and to create a cohesive environment that people want to live in. Physical connections provide means of travel to get from one place to another but emotional connections are just as important. Being connected to a space emotionally gives people a sense of pride in their community and a reason to stay, remain and take part in the

community.

Infrastructure is the concept that makes cities efficient and livable. It is the backbone of any given city. Infrastructure is generally overlooked and taken for granted even though it is of the utmost importance for a city. Infrastructure consists of transportation, emergency services, communications, government services, and distribution of natural resources. Without infrastructure the city would fail.

Sense of place is the emotional connection to space. It is a thought or feeling that people identify with and it becomes a representation of the community. Sense of place is influenced by the place's physical characteristics as well as the interaction among its occupants. Communities that represent the space and a space that represents the people makes for a cohesive environment.

Using the city itself and its components to inspire architecture is best explored via a city hall. "City halls and civic centers are the hearts of our cities. In them, we need to feel at home in our world. We need to hear the heartbeat of our communities" (Fentress 10). City hall represents the city itself when it comes to decision making and so it should physically represent the city as well.

CASE STUDIES

TYPOLGY

CITY HALL

LOCATION

BOSTON, MASSACHUSETTS

SIZE

513,000 SQ. FT.

ARCHITECT

KALLMANN MCKINNELL & KNOWLES

YEAR

1968



Figure 6
Boston City Hall
American Architecture 2013

Boston City Hall is located on the former Scollay and Dock Square and became the centerpiece of I.M. Pei's master plan for downtown Boston. The piece of architecture brings Boston together as it becomes a merging point of different neighborhoods. The plaza is the center point of lane known as the "passage to the sea" which links Beacon Hill to the waterfront and the city square to the surrounding markets of historic Boston. Boston City Hall has become an icon and a landmark for the city of Boston (Fentress 44-47).

The building itself is a representation of government. It was designed in a modernistic style but it alludes to a historic typology. The modernist style is expressed through a complex design that expands as the building moves upwards. Abstractions of classical elements can be seen throughout the building as well as on the interior such as the use of walls instead of columns. It is comprised mainly of cast-in-place concrete, precast concrete, and masonry. The building is made to represent three distinct areas of city hall. The lower levels are meant to be more permeable as it represents the accessibility and transparency of the government and houses the public city departments. The building overshadows the plaza and large overhangs blur the line between the interior and the exterior. The mid-levels house the public officials. These offices are located along the outer walls and in some instances protrude from

them. This effect reflects the importance of the government and how it oversees the city, represented by the plaza. Walking under these massive cantilevers shows the true power of local governments. The upper stories are meant for administrative purposes and become less geared toward the public which is apparent through the massive amount of concrete used and minimal glass (Fentress 44-47).

The building fits in with its surroundings due to similar typologies, materials, and color choices. The large plaza draws people into space and seems to set the building apart from the rest of the city. It draws attention off of the daunting building by creating a break in the commercial city blocks.

This particular building was chosen as a case study because it is a bold and powerful building but it is not overwhelming. It has become a focal point for downtown Boston that people can associate themselves with. Even though it is a government building, it has characteristics that invite people and allows them to be active in their city government. The plaza adds to the sense of place by creating an area that people want to be even though such a building comes with negative connotations. This case study shows that a connection between a city and its local government can be a positive thing simply by the way in which the architecture is perceived.

GEOMETRY

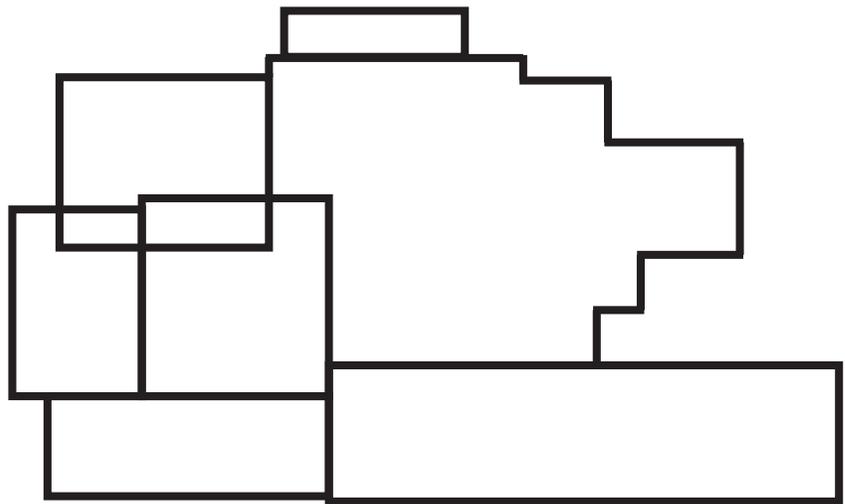


Figure 7 Geometry
T. Buerkle

STRUCTURE

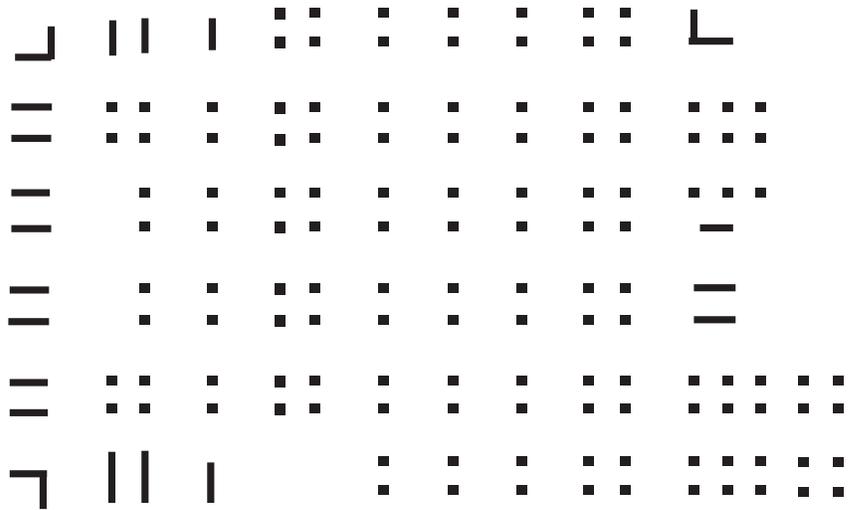


Figure 8 Structure
T. Buerkle

MASSING

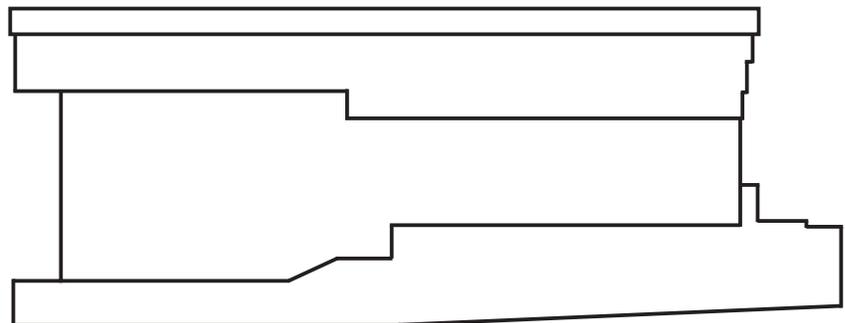


Figure 9 Massing
T. Buerkle

HIERARCHY

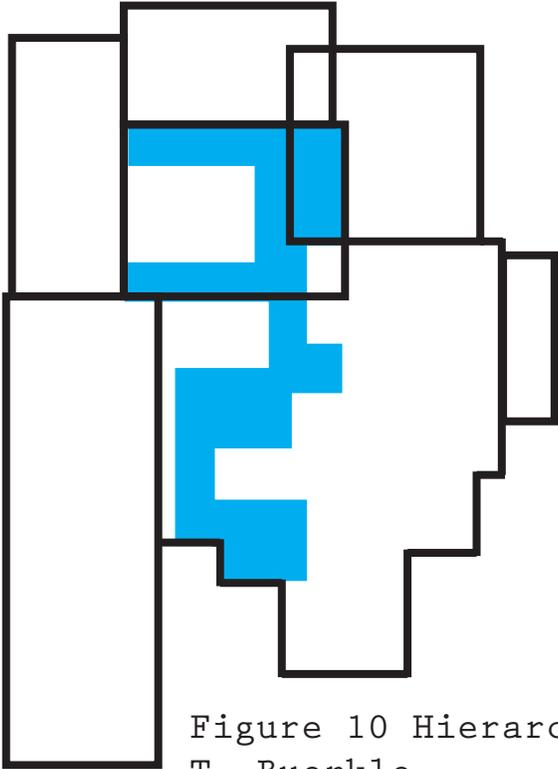


Figure 10 Hierarchy
T. Buerkle



Figure 11 Interior Perspective
Fentress

CIRCULATION

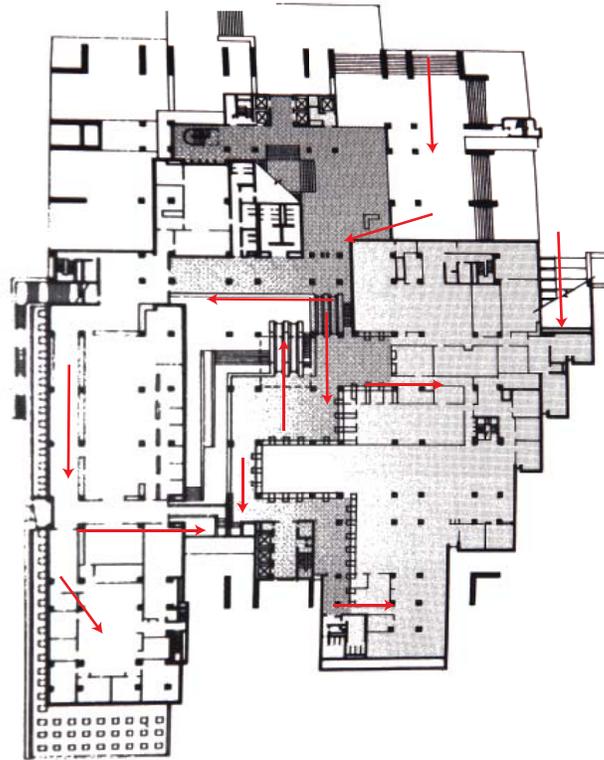
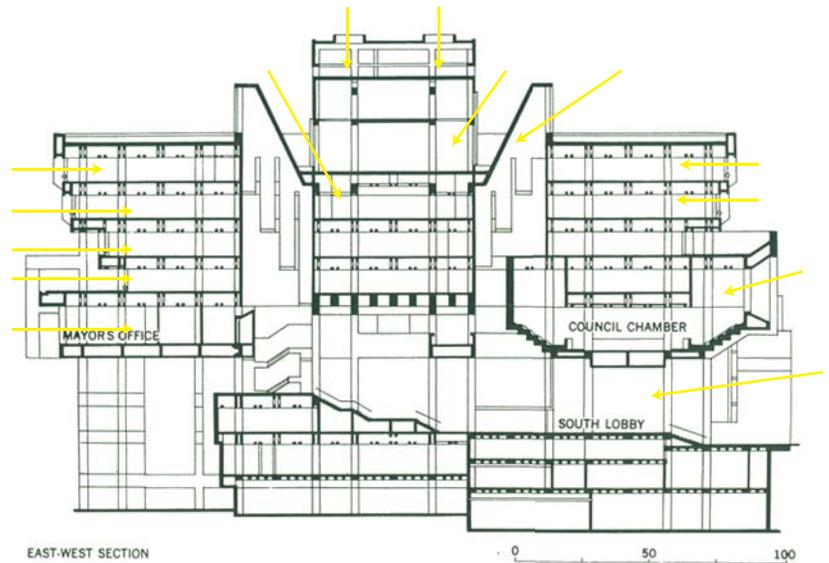


Figure 12 Circulation
T. Buerkle

NATURAL LIGHT



EAST-WEST SECTION

0 50 100

Figure 13 Natural Light
T. Buerkle

PLAN TO SECTION

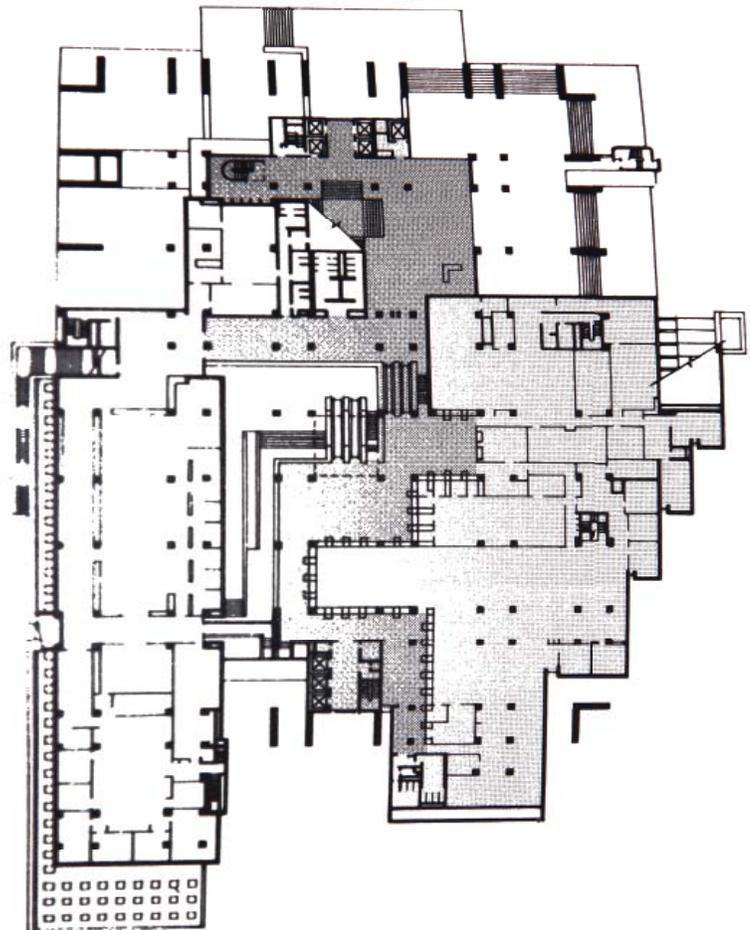
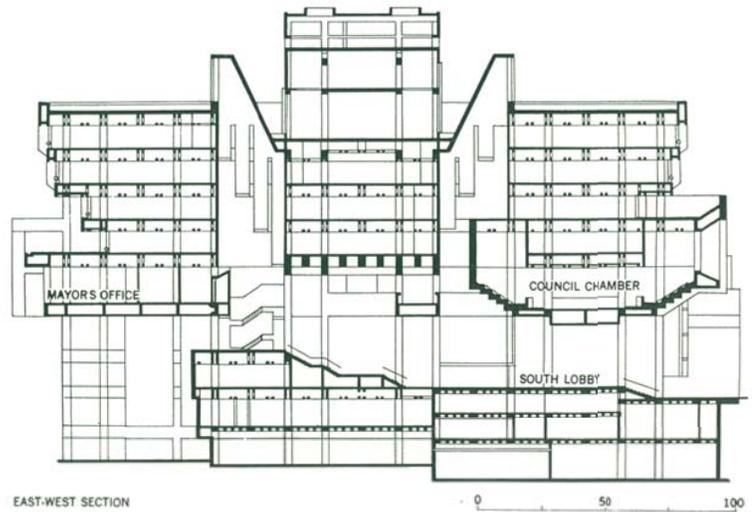


Figure 14 & 15 Plan to Section
T. Buerkle

DALLAS

CITY HALL

TYOLOGY CITY HALL

LOCATION DALLAS, TEXAS

SIZE 691,000 SQ. FT.

ARCHITECT I.M. PEI & PARTNERS

YEAR 1977



Figure 16 Dallas City Hall
Fentress

Dallas City Hall is located in downtown Dallas and is an iconic source of inspiration for Dallas. Following the tragic assassination of President John F. Kennedy Dallas became known as the "City of Hate," and the city started to crumble. City officials made it a priority to improve the image of the city and reunite Dallas. "We demand a city of beauty and functional fitness that embraces the quality of life for all its people" (Miller 2013). This statement became the start of a movement in Dallas that brought the community together in order to reinforce its sense of place. This movement began with a new city hall meant to establish a sense of civic pride and to unite the city's numerous civic departments under one roof (Fentress 48-53).

Dallas City Hall became on monument in the city that counteracts the downtown Dallas skyscrapers. It was designed to create a buffer zone between the public downtown areas and more private neighborhoods. I.M. Pei meant to design this building in the image of its people and the community. It needed to be simple yet strong and bold just like the citizens of Dallas. He believed that in order for the building to establish a new sense of place, it had to come from the place. The building was meant to appear as if it came out of the ground rather than just placed on top. This design choice reflected the importance of the community and showed that this building was meant for this place. The city hall is a long and narrow building with a

large cantilever that overhangs into a large public plaza. The long narrow façade speaks to the surrounding flat land that is Texas while the monumental overhang invites people into the space and allows them to establish a connection to the place. Pei claimed the downtown area was of little architectural value and thus the city hall became a focal point for the area (Boehm).

The building meshes with the current city because localized materials were used and the building's purpose was to blend different environments together to create a uniform community. Its modern style reflects the surrounding area and represents the advancement of the city. The building's form reflects the interior organization. It is narrow at the base to invite people and is essentially a reception area for each individual department. As the building goes upwards it gets wider and provides more room for the departments. Department location is determined by the number of employees and by the amount of citizen participation. Vertical circulation occurs in stairwells that appear to columns from the outside. Large corridors and spaces open to below allows for easy circulation as well as natural light to penetrate deep into the building (Fentress 48-53).

This building was chosen as a case study because its main purpose was to reinvent the identity of Dallas, Texas. It successfully

transitioned Dallas's image from dark and negative identity into something that citizens are proud of. The assassination of the President Kennedy was a great tragedy and negatively influenced Dallas's sense of place. This building restored Dallas's identity and accurately depicts the city for what it is. This case study shows the impact that one civic building can have on an entire community.



Figure 17 Dallas City Hall
Fentress

GEOMETRY

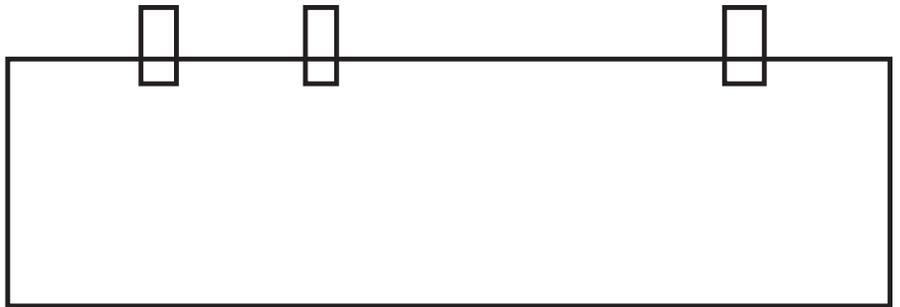


Figure 18 Geometry
T. Buerkle

STRUCTURE

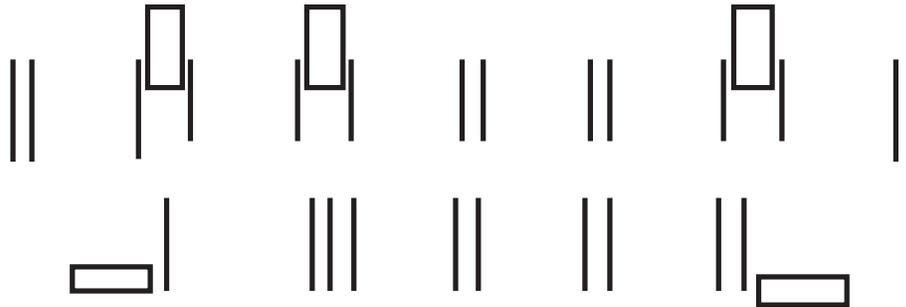


Figure 19 Structure
T. Buerkle

MASSING

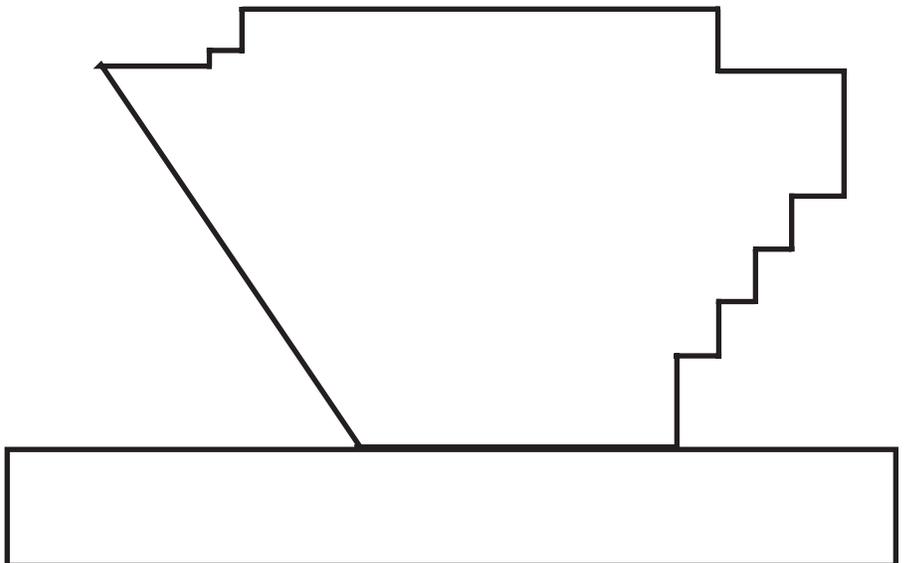


Figure 20 Massing
T. Buerkle

HIERARCHY

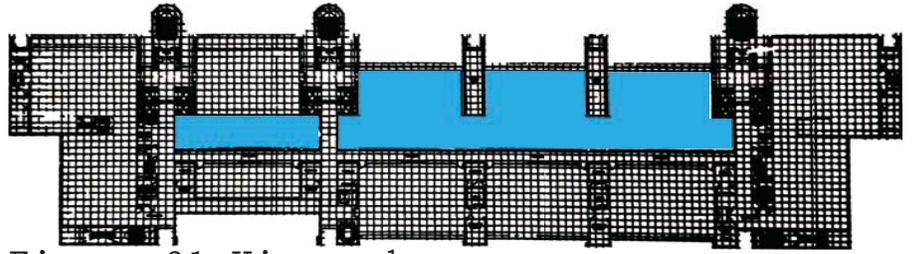


Figure 21 Hierarchy
T. Buerkle

CIRCULATION

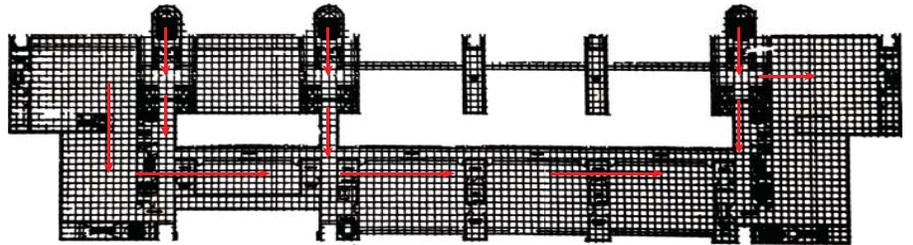


Figure 22 Circulation
T. Buerkle

NATURAL LIGHT

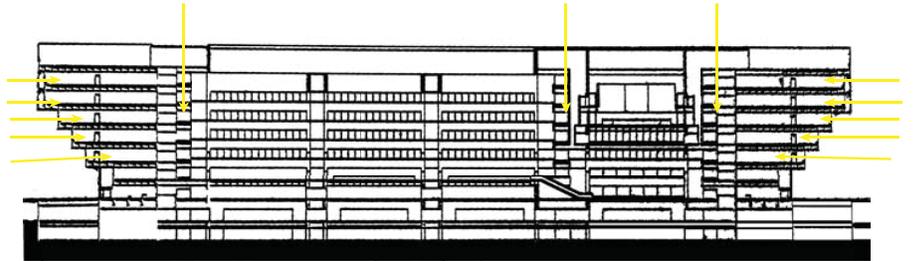


Figure 23 Natural Light
T. Buerkle

PLAN TO SECTION

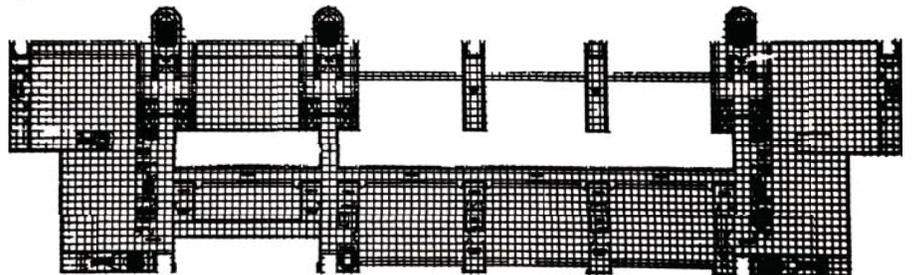
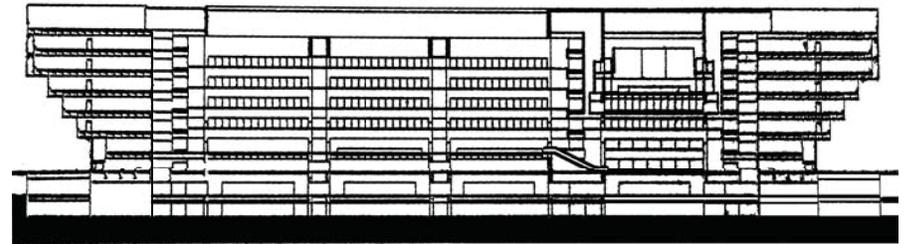


Figure 24 Plan to Section
T. Buerkle

T TYPOLOGY CITY HALL

L LOCATION LA FLECHE, FRANCE

S SIZE 25,000 SQ. FT.

A ARCHITECT ADRIEN FAINSILBER

Y YEAR 1994

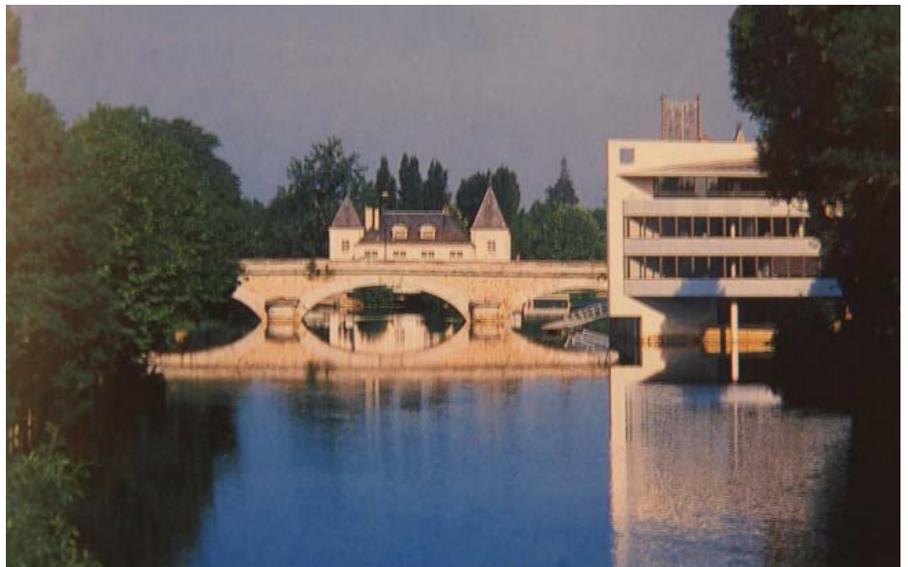


Figure 25 La Fleche Town Hall
Fentress

La Fleche Town Hall is located in Northern France and is an icon for the small town. The town hall consists of three main buildings: Chateau des Carmes, and administration buildings and council chamber. Chateau des Carmes was fortress constructed in the year 1050 has been transformed into an abbey, a college, a mansion, a monetary, and in 1994 it became the new town hall. In the early 1990's, the town's population outgrew the old building and Adrien Fainsilber was commissioned to expand the facilities. The site of the town hall sits on river and the new additions cantilever over (Fentress 100-103)

A remodeled Chateau des Carmes still resembles a medieval style of architecture while the additions are very modern. Originally a bridge was the only entrance to the site but now the expanded site is connected to a large square and the rest of the city. Only the additions are connected to the square but all three buildings are connected via footbridges. The new additions are cantilevered over the river to create an atmosphere that people can connect with. The sense of place changed from a daunting government building to a tranquil place that people want to be in and enjoy. The new town hall has become a place for wedding ceremonies to occur right on the water and then the newly-weds leave the site via the water (Fentress 100-103).

The old medieval building represents an old form of government where the city official held all of the power. The additions

to the facility are meant to be translucent and show the people that they have a say when city matters are at hand. The old building houses most of the officials and is a very private place while the modern buildings were designed for public access. Lots of glass and water features on the site create a public environment that invite people in. Through the use of carefully chosen materials and other design elements, this site takes full advantage of the environment. The buildings follow the course of the river so as to not disrupt the flow of the river and they are elevated for the public to have access to the park. The site takes full advantage of the passive elements via window size and placement, operable windows, and shading devices. The building meshes with the given environment and uses what it has to offer (Fentress 100-103).

This building was chosen as a case study because of the additions to the site and how powerful they can be. The dynamic and sense of place was completely changed simply by adding a building that is responsive to the site. The new building only enhances the experience that is already there but that is enough to change the perception of the space. The connections and interactions of the building are also very important as well. The additions to the space enhanced the sense of place but they were also mindful of what was already there. Connecting the new with the old and embracing that connection is what makes the site so iconic and cherished.

GEOMETRY

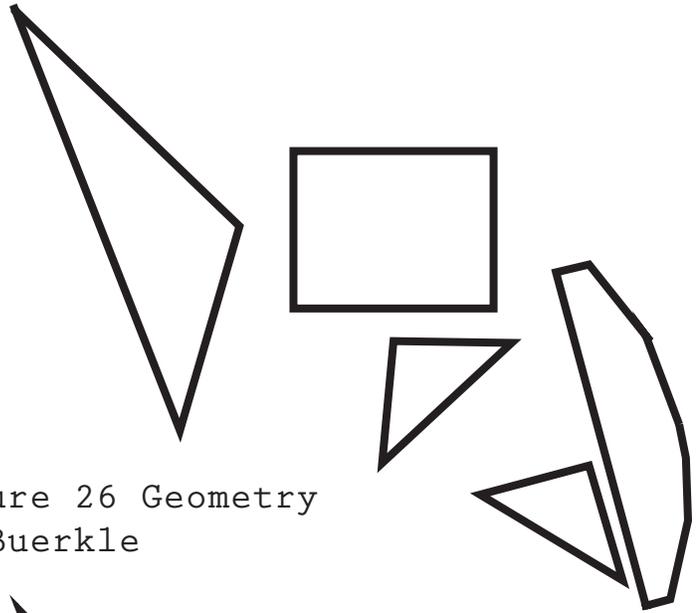


Figure 26 Geometry
T. Buerkle

STRUCTURE

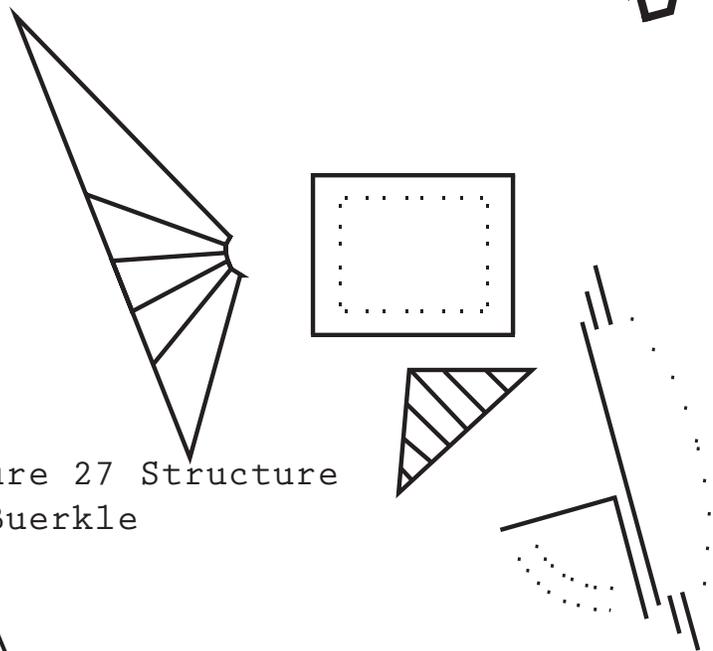


Figure 27 Structure
T. Buerkle

MASSING

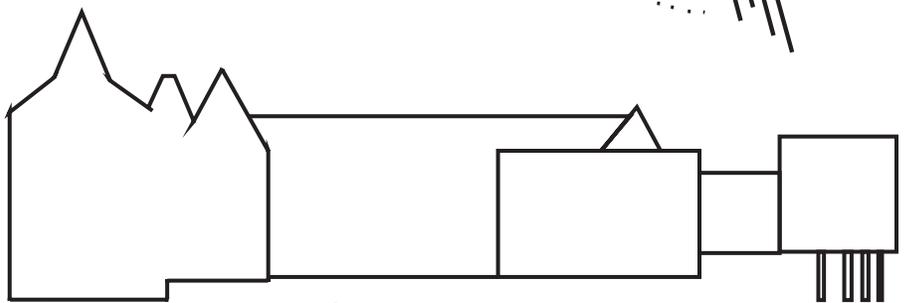


Figure 28 Massing
T. Buerkle

HIERARCHY

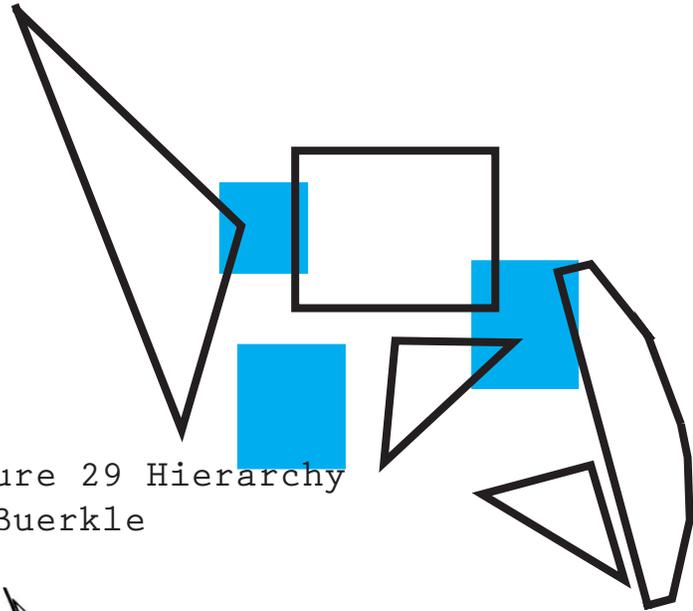


Figure 29 Hierarchy
T. Buerkle

CIRCULATION

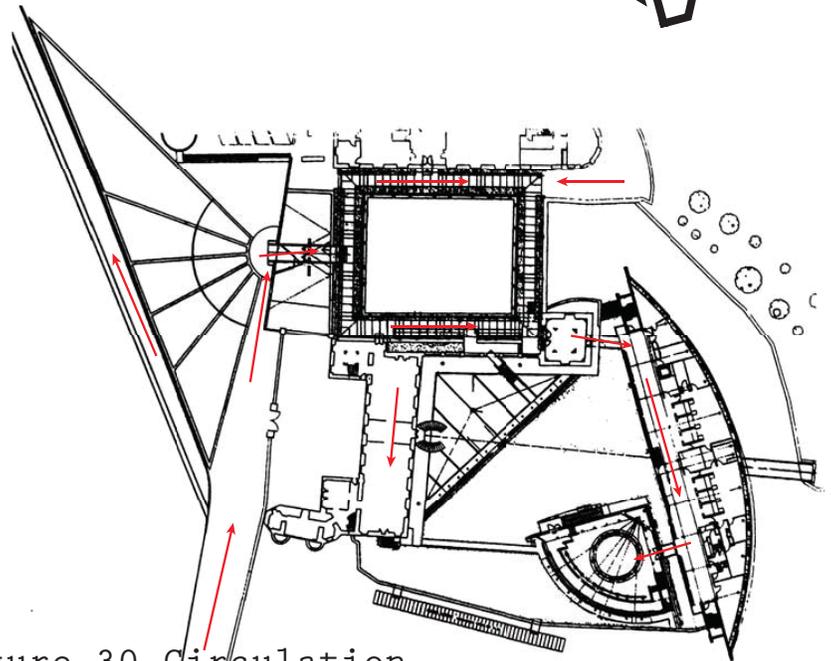


Figure 30 Circulation
T. Buerkle

NATURAL LIGHT

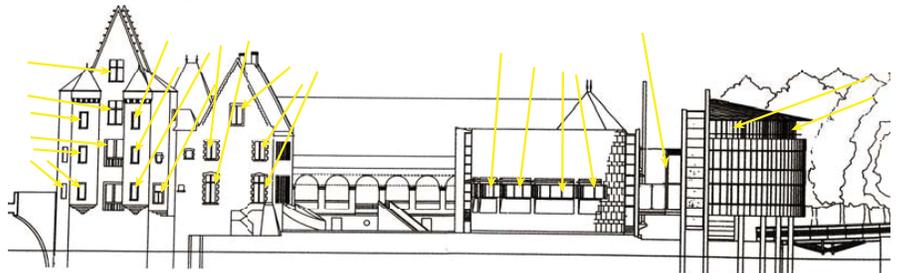


Figure 31 Natural Light
T. Buerkle

PLAN TO SECTION

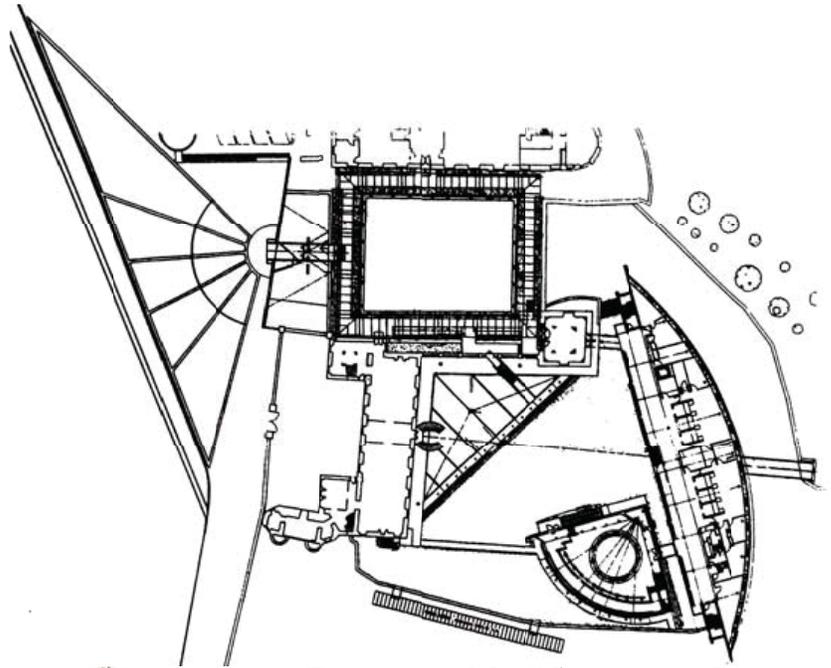


Figure 32 Plan to Section
T. Buerkle

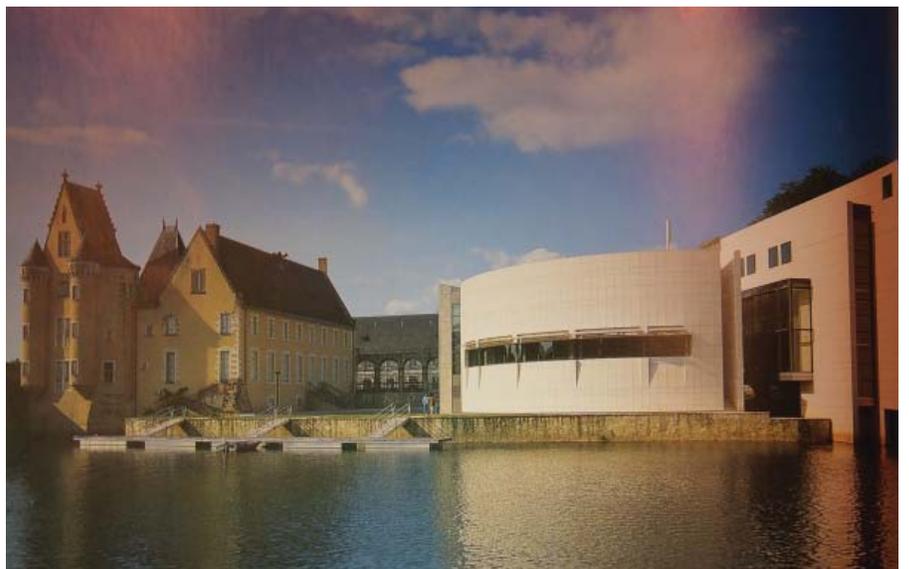
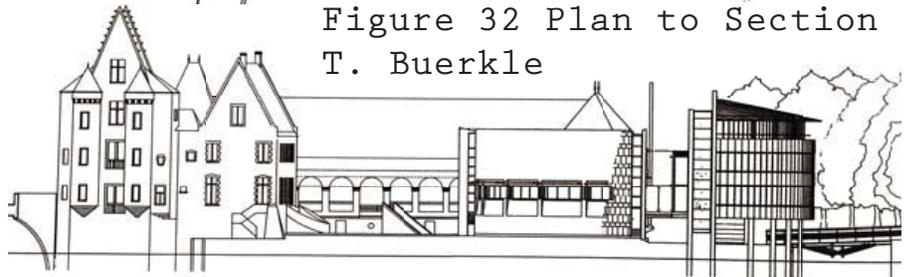


Figure 33 Town Hall
Fentress

After carefully analyzing these three typological case studies, a greater understanding has been achieved regarding the overall design of a city hall and the impact in which a single building can have on the community. These three cases studies will provide a solid foundation in which to start my own project and together they will help guide me to a creative solution to the problem at hand.

All three projects presented are of a city hall typology although each project is distinct and unrelated but they shared three common features that seem to make each successful. These three shared traits of each building consisted of representing the government and connecting it to the people, separation of public and private spaces, and showing how much of an impact one building can have on the perception of the space.

In each case study, the main goal of the architecture was establish a connection between the government and the community. The buildings were designed to transparent and inviting on ground floors to show that people are welcome to the spaces and are encouraged to be active in their local government. All three cases use large plazas to gather people to the spaces. From there, Dallas and Boston use large cantilevers and overhangs to draw people further into the space and into the building. La Fleche uses carefully placed glass and uses natural to guide the people

through spaces. Each building was carefully designed to respond to the given environment and community in which it is located.

The case studies also show similar organization of spaces. It is important to establish a distinction between the public and private spaces of civic buildings. The ground floors of both Boston and Dallas city halls are completely public spaces and as the building rises, the spaces become more geared towards the departments rather than the public. This design decision was made to make it easy for the public to get to the spaces that they can be active in. La Fleche uses a similar tactic through the use of its plaza. The public spaces are connected to plaza and park for easy access while the private spaces are only accessible via bridges.

The final similar characteristic of each building was how it impacted perception of the space. Each building was designed to respond to the given environment and enrich sense of place. Dallas City Hall was designed to turn the image of Dallas around after the Kennedy assassination as well as to merge the public neighborhoods with the private. This building helped reinstall a sense of pride in the Dallas area because it gave them something to be proud of. Boston City Hall brought the community together as a whole and became the center of a variety of neighborhoods. It connected historic Boston to the waterfront and the plaza became a

destination to be in downtown Boston. La Fleche used modern additions to the site to create a proactive environment. What used to be a medieval fortress became a peaceful place that people can now enjoy. The overall goal of each building was to get people to the site, to take pride in their community, and to active in their local government.

Each case study was chosen because of its unique characteristics. Boston was chosen because of its modern design and yet it keeps the feeling of a government building. Dallas was chosen because it shows the impact that a singular building can have on the entire city. La Fleche was chosen because of it connects and reacts to the given environment.

Fargo was founded in October of 1871 as a place for the Northern Pacific Railroad to cross the Red River and continue its trail west to the Pacific. The town is named after William G. Fargo, director of the Northern Pacific Railroad and co-founder of Wells Fargo Express Company. Fargo began as a small trade and travel town because of its connection to the railroad and the Red River. By 1876 the population of Fargo was around 600 people and by 1892 it had grown to well over 8,000 inhabitants because of cheap, fertile farmland in the Red River Valley (City of Fargo). The Red River Valley provided settlers with access to water, fertile land to farm and animals to hunt. By the year 1910, the population of North Dakota was 577,056 with the majority of the people being farmers. Because of the vast amount of farmers in the surrounding areas, Fargo began to grow as a city because it became the closest place to buy and sell crops, and trade and ship goods. A union elevator was established in the middle of town that was connected to the railroad which allowed for crops to be shipped out with ease (Caron 2004).

Today, Fargo has grown to a population of just under 110,000 people and is the largest city North Dakota. Fargo is part of the Fargo-Moorhead Metropolitan area that consists of Fargo, West Fargo, Moorhead and Dilworth which has a population of 220,000. Over time, Fargo has become a center for cultural events, retail shopping, health

care, and education for the region. The area of Fargo is just under 50 square miles with a population density of around 2,100 people per square mile. Around 91 percent of Fargo's inhabitants are white and the main sources of ancestry are Norwegian and German. Originally the economy was based upon agriculture but it has recently switched to rely on technology, processing, manufacturing and trade (City of Fargo).

Fargo is comprised of 38 neighborhoods that are designed around the locations of elementary and middle schools. Each neighborhood generally consists of a school district, parks and green space, a variety of housing options, and retail. Action plans have been put in place for the city that will help regulate city and population growth. These plans help minimize urban sprawl as well as maintain and preserve the older parts of Fargo. The heart of Fargo lies in its downtown neighborhood (City of Fargo).

Downtown Fargo used to be a dreary, rundown place but starting in 2001, a framework was developed to encourage the growth of downtown. The plan called for strategic investments to start to remodel the downtown area and encourage growth. By 2007, the downtown area began to reflect the framework changes and it became a vibrant neighbor that really is the heart of the city. Downtown Fargo now offers unique opportunities to live, shop, eat and be entertained. City landmarks and places of

destination include the Fargo Theatre, city hall, civic center, court house, and NDSU's Renaissance Hall. Massive incentives such as tax exemptions have been given out to encourage people to invest in downtown Fargo. Remodeling and refurbishing old, rundown buildings such as Renaissance Hall or the Loretta Building have brought the area back to life. Older buildings' facades are being preserved to maintain the historic aspect of downtown Fargo but brand new interiors are transforming the area into a place that people want to be in. A proposed 23 story skyscraper located in the center of downtown Fargo would also attract more people to the area. The downtown district connects Fargo to the river, Fargo to Moorhead, commercial to residential, and brings all the neighborhoods of Fargo together to form a cohesive community and environment (City of Fargo).

One of the major issues that Fargo faces as a community is the Red River flooding every year. The Red River exceeds its banks almost every year in the spring when the snow begins to melt, but ever since 2009, flooding has become a major issue. Flood stage begins when the water level of the river reach 18 feet. The Red River doesn't cause any major damage to the city as long as it remains under 30 feet but when water levels rise above that level, the city needs to be concerned. In 2009, the flood crested at approximately 41 feet and Fargo was not ready for that. The Fargo-Moorhead area needed roughly six

million sandbags in order to save the city (Springer 2009). Without any sandbags, the majority of the city of Fargo would have been under water. Since 2009, Fargo has been prepared for flooding each year by creating a supply a sandbags months before they would be needed, home buyouts, and a river diversion plan is currently in the works. Home buyouts consisted of the City of Fargo buying property and houses from people that were located on or very near the river and other water sources. Areas that were affected by buyouts include houses located on the Red River, property in the Rose Creek development, and property on the Fargo Country Club. These areas were subject to massive flooding and for the safety of the owners and the city; Fargo bought them out and tore down their homes. Expanding the buffer zone between the water and people's property has lessened the burden on the city when it comes to sandbagging as permanent dikes were able to be constructed. Flooding becomes a major factor when deciding where to build (City of Fargo).

The current city hall is located on 3rd street in downtown Fargo but according to city officials, "the decades-old city hall here is cramped, outdated and failing" (Burgess 2013). The current city hall was constructed in the 1960's and has since become outdated. The building currently has 24,000 square feet of usable space, which was adequate when the building was first constructed but a 35,000 square foot building is what the

city needs by today's standards. A 65,000 square foot new development is the ideal size for the new city hall as it takes into consideration future growth of the city. Due to the lack of space and outdated technology, Fargo has called for a new city hall to be constructed. Issues with the current city hall, other than lack of space, include inefficient heating systems, poor ventilation and outdated plumbing systems. The current method for heating the building relies on the original boilers which are now 53 years old. The old boilers are estimated to be 55 percent efficient while new boilers are up to 85 percent efficient. The current boilers are large, poorly insulated and give off a tremendous amount of heat. It is not uncommon for the boiler room to reach temperatures of over 100 degrees. The heating systems currently in place run through each floor and are covered in asbestos material which means that they need to be completely replaced and so would the floor itself. Current ventilation and air conditioning methods are inefficient due to lack of individual control. The air handling units that supply each end of the building only send one temperature of air which does not allow for individual or even department temperature settings. All forms of HVAC heating and cooling are mechanically induced. Using passive systems would greatly reduce the cost of heating and cooling such a large building. The original plumbing is also still being used and the pipes are starting to show signs of corrosion. The plumbing

fixtures need be replaced before something major happens like the sanitary sewer or vent piping fails. This would result in major health hazards and effectively shut down city hall until repairs could be made. City hall is getting old and it needs an upgrade (Obermiller-Nelson 2007).

The current city hall is clearly old and outdated and something has to be done. The options were to replace the majority of the mechanical systems and add on an attachment or build a new building. The city official decided that a new building would be best to meet their needs. The cost of tearing out all of the systems and replacing them with brand new ones was very cost inefficient when compared to the cost of a new building. To strip out the old systems, the whole interior would likely have to be gutted, thus displacing all of the employees that currently work in the city hall. The idea of a new building just made more sense (Burgess 2013).

Finding a site for the new city hall proved to be a challenging task. Possible sites included the downtown area as well as a location further south because of the way in which Fargo is expanding. The goal of the city hall was to design for the future and the future of Fargo is expanding southwards. The other option was to keep the city hall in the downtown area or the heart of the city. This option is the best solution because of its connection to the city. It is a middle

ground between North Fargo and South Fargo which makes it centrally located. The downtown area is easily accessible as well because it is walkable, accommodates cars and has a connection to the bus routes. Essentially anybody in Fargo can get to city hall without too much of a hassle (City of Fargo).

The basic infrastructure in Fargo consists mainly of means of travel and basic necessities like water and sewage. Methods of travel to get around the city rely heavily on the use of cars. Fargo was planned based upon a grid system which consists of major streets to get around the city and then smaller streets to get to actual destinations. The major streets consists of sets of roadways that either run North to South or East to West and two highways, one the runs North and South and one that runs East and West. These major streets span the length of Fargo ensuring quick and easy travel. Bus routes are available but they are not the most convenient method. Bus routes are intended to get people into each neighborhood and from there everything is within walking distance. Bus routes overlap in the downtown neighborhood and from there they spread out to the rest of the city. Railroads were the foundation of Fargo but toady they aren't used as a method of transportation although trains do still run through. Fargo relies on the Red River as its source of water. The Fargo Water Filtration Plant is responsible for taking in river water, cleaning it, and then dispersing

it around the city. The plant is capable of treating up to 30 million gallons of water a day and the city of Fargo uses roughly from 10-15 million gallons a day depending on the time of year. Fargo also has a wastewater treatment plant that services all of Fargo and some of the surrounding area. Wastewater and sewage are pumped via underground tunnels to the plant where it is treated and the emptied back into the Red River (City of Fargo).

Academically speaking, my goal for this thesis project is to create a work of architecture that finds a creative solution to the problem at hand while developing a complete and thoughtful design. This project provides me with the opportunity to showcase what I have learned over the past five years and really explore different concepts and ideas. Considering how each decision I make effects both the design and the surrounding area is crucial. Designing a holistic building that merges with its surroundings and becomes part of the existing community is very important to me. The final goal is to present the project in such a way that the public understands what I am trying to accomplish. I need to display my work in a well-thought out manner that accurately displays the importance of the project through the use of simple graphics, limited text, and highly executed renderings. I hope this project becomes a useful aid for future students, designers, and architects.

In terms of professional goals, this project gives me the opportunity to sell myself to potential employers. I want to show how well-rounded my skill set is while highlighting what I do best. My goal is to treat this project like it is a design for a real client. I need to be mindful of my decisions and determine what is best for the design while still meeting client's needs. This project is the first step into transitioning into a professional environment and it shall be treated as such. Time management,

cost effectiveness, design exploration and innovation and execution are necessary traits to harness when making the transition into a professional career.

My personal goal for this project is to grow as an architect and a person. I want to push myself, work hard and strive for excellence. My goal is to find creative solutions to problems and expand my design every day. I want to show off my strengths as a designer and improve upon my weaknesses. The main goal of this thesis is to complete a project that I am proud to call my own. I want to design a holistic project that responds to and meshes with the existing environment. This project is a representation of myself.

SITE ANALYSIS

INTRODUCTION

Located in the heart of the city, the green plaza appears as oasis surrounded by the concrete and masonry that is everyday life. The chosen site is a crucial piece of the newly reinvented downtown Fargo that brings the community together as a whole. It provides a fresh breath of air into old community and inspires new life. Located in the heart of downtown, the site offers a break in the urban landscape. A large grass courtyard and scattered vegetation form a place of peace and tranquility that is surrounded by the chaotic noise of everyday life. It provides an escape, if only for an hour, from the tedious workings of the standard work day.

VIEWS

Located in the urban downtown district, the roughly 500,000 square foot site has a strong connection to nature. It features a large grass plaza to the west and a wooded area that leads down to the river on the east. The west half of the current site is occupied by the current city hall and civic center, while the east half is parking lot that faces the river. To the north and south of the site, an assortment of one story buildings sit apart from the Fargo Public Library that shares the plaza with the existing city hall. To the west, larger multi-story buildings sit which limits the view looking toward the rest of the downtown area. The site is located just off of the 1st avenue bridge which is a major connection between Fargo and Moorhead. The east view of the site is something to be emphasized due its connection between the

two cities as well as the connection to the river.

LIGHT

There is an abundance of natural light that shines onto the site. Very little site vegetation and short surrounding buildings contribute to the amount of sunlight on the site. The space receives full sunlight from mid-morning, when the sun gets over the trees along the river, until late afternoon when the sun goes behind the taller buildings to the west. The amount of sunlight present on the site needs to be accounted for and can be used in the design. Shading devices are needed to keep the building cool in the summer but the sun could be used to passively warm the building in the winter.

VEGETATION

When considering the site alone, there is very little vegetation but when the rest of the downtown area is taken into consideration, this site contains an abundance of it. The majority of the vegetation consists of the plaza on the west side of the site. It is comprised of mostly grass and has multiple pockets of trees scattered around it. The rest of the site contains minimal landscaping with the occasional cluster of trees on the corners.

WATER

The only source of water around the site is the Red River. When the river floods in the spring, it most definitely affects the site but for the rest of the year it has little to no impact. Due to everyday urban noises

like traffic and construction, the cannot be heard, only alluded to. The small growth of trees across from the site and the presence of a bridge tell us that there is water but it cannot physically be seen from the site.

WIND

Wind is something that is always present on the site. The west side plaza is partially blocked from the wind, as it is surrounded by buildings. The rest of the site is open to the elements as streets and other passage ways open up directly into the site.

HUMAN INTERACTION

The site was definitely designed to meet the need of humans but elements were kept in place to keep the connection to nature. The buildings and parking lot on site show that humans are present on the site but the plaza was designed to minimize their presence.

DISTRESS

Distress is not currently prevalent on the site but during times of flooding, stress takes its toll. The river is so close to the site that precautions like the building are flood wall are being put in place to save the site from future damage.

SOIL

Soil on site consists of silty clay that dry from 0-8 inches down and then wet from 8-60 inches. The soil comes from glacial lake plains and other flood plains and naturally drains poorly. The color is black on top and slowly becomes a dull gray the deeper the soil is.

UTILITIES

Due to the immense size of the site, electric boxes, storm drains, and fire hydrants are scattered along the site. A utilities building is located on the south end of the site that connects to the sewer system below. Electric lines are underground and run up into the buildings.

SITE CHARACTER

The site is relatively clean and shows very few signs of wear and tear. The conveys a feeling of freshness and liveliness in an urban environment.

TRAFFIC



- PRIMARY VEHICULAR TRAFFIC
- SUB-VEHICULAR TRAFFIC
- PEDESTRIAN TRAFFIC

Figure 34 Traffic
T. Buerkle

TOPOGRAPHY



Figure 35 Topography
T. Buerkle

VEGETATION MAP



Figure 36 Vegetation
T. Buerkle

PHOTO

GRID



Figure 37 Photo Grid
T. Buerkle

LOOKING WEST



LOOKING NORTH



LOOKING EAST



Figure 38 Site Photos
T. Buerkle



Figure 39 Photo Grid
T. Buerkle

LOOKING EAST



LOOKING WEST



LOOKING SOUTH



Figure 40 Site Photos
T. Buerkle



Figure 41 Photo Grid
T. Buerkle

LOOKING SOUTH



Figure 42 Site Photos



Figure 43 Photo Grid
T. Buerkle

LOOKING NORTHEAST



LOOKING SOUTHEAST



Figure 44 Site Photos
T. Buerkle



Figure 45 Photo Grid
T. Buerkle

LOOKING NORTHEAST



LOOKING EAST



Figure 46 Site Photos
T. Buerkle

CLIMATE

DATA

TEMPERATURE

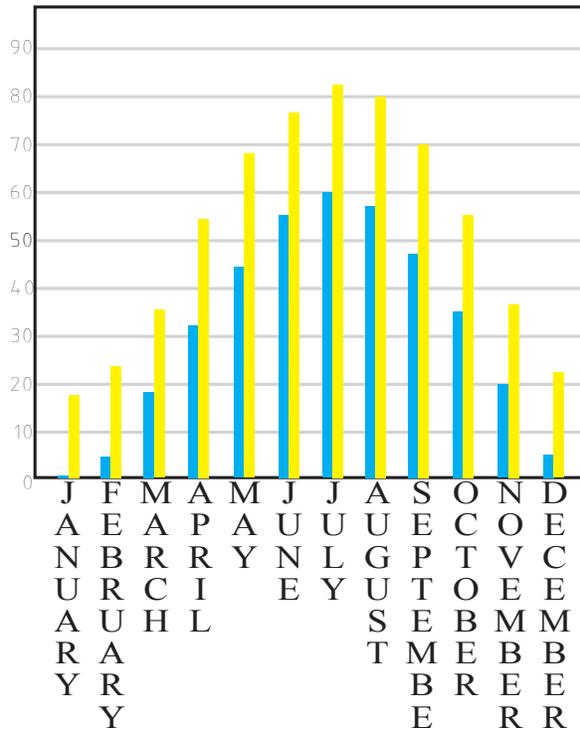


Figure 47 Temperature
T. Buerkle

HUMIDITY

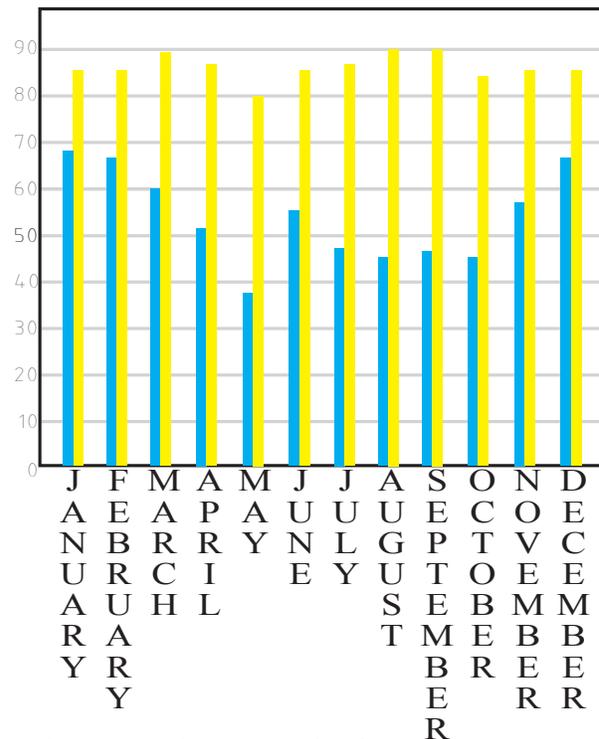


Figure 48 Humidity
T. Buerkle

PRECIPITATION

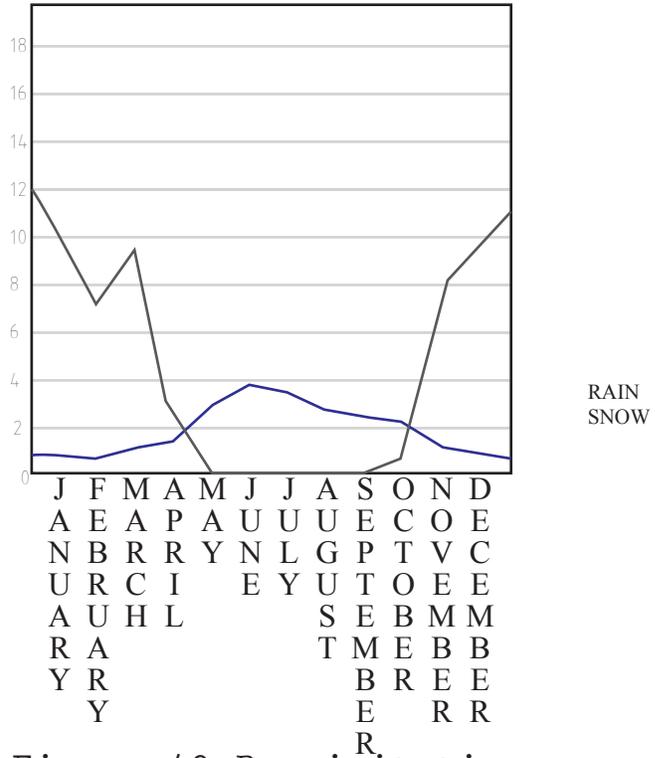


Figure 49 Precipitation
T. Buerkle

WIND SPEED

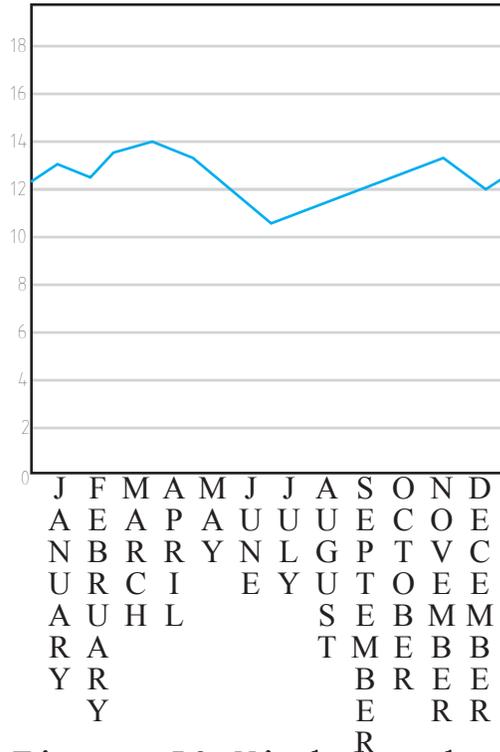


Figure 50 Wind Speed
T. Buerkle

SUN DIAGRAM

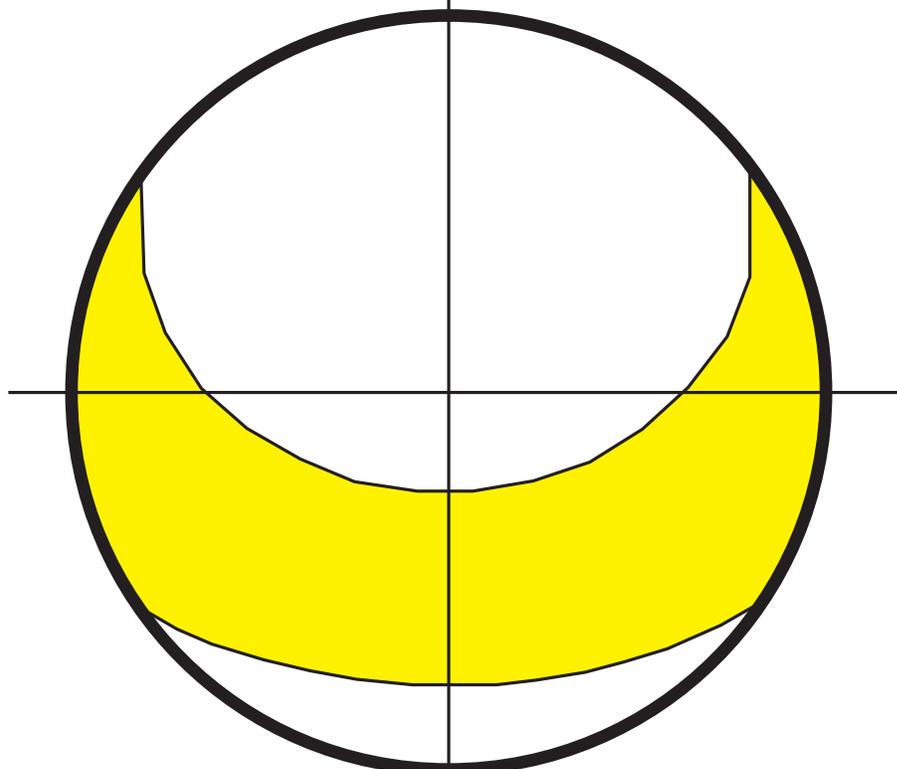


Figure 51 Sun Diagram
T. Buerkle

CLOUDINESS

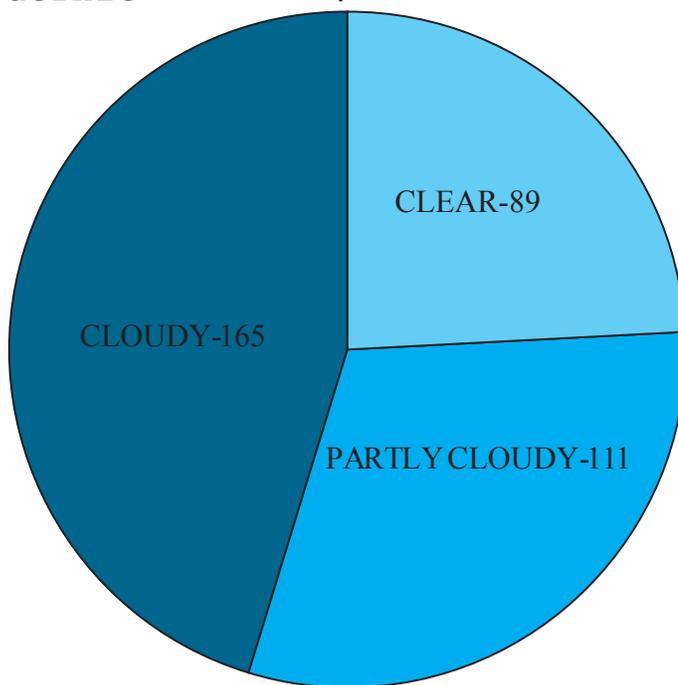


Figure 52 Cloudiness
T. Buerkle

WIND ROSES

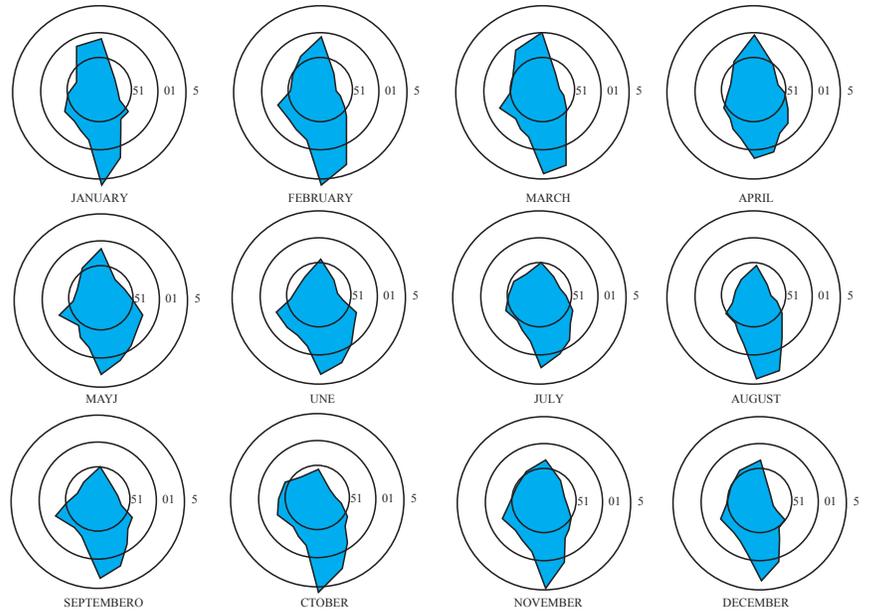


Figure 53 Wind Roses
T. Buerkle

AIR FLOW & NOISE



Figure 54 Air and Noise
T. Buerkle

MATRIX

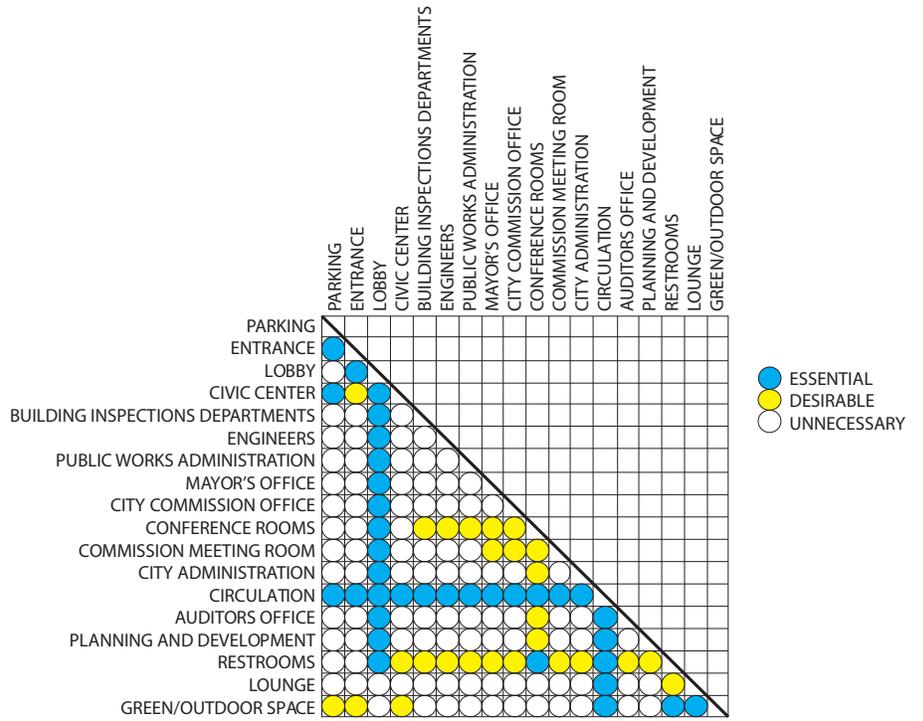


Figure 55 Matrix
T. Buerkle

INTERACTION NET

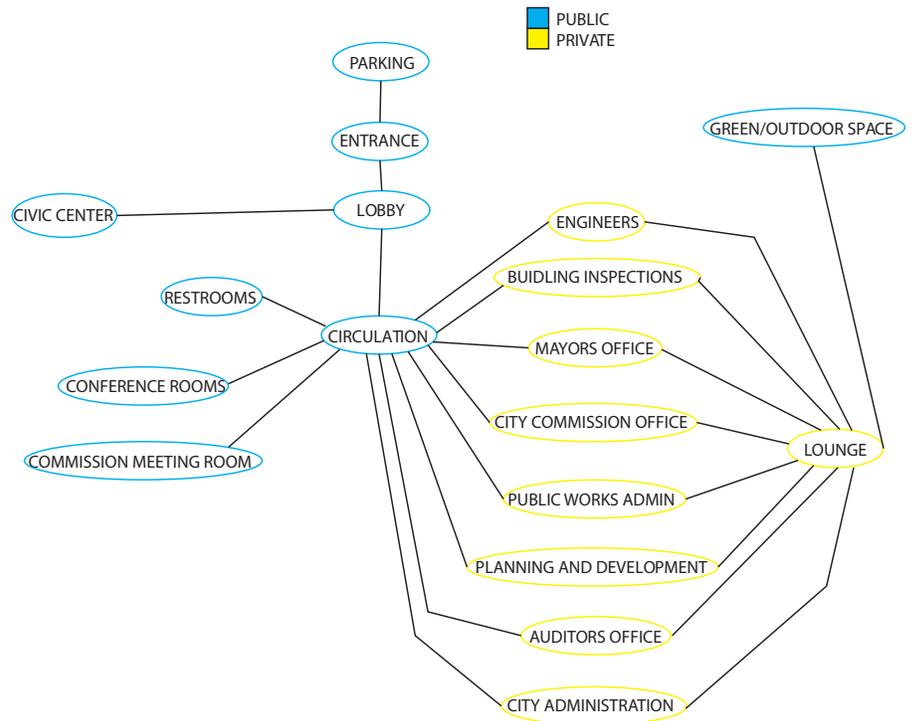
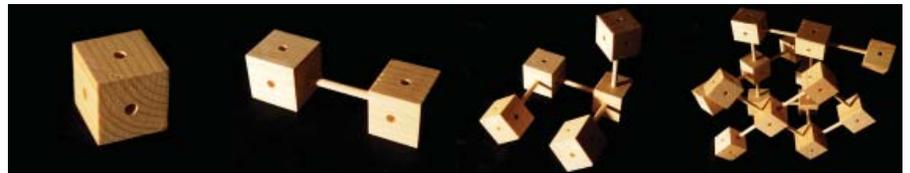


Figure 56 Interaction Net
T. Buerkle

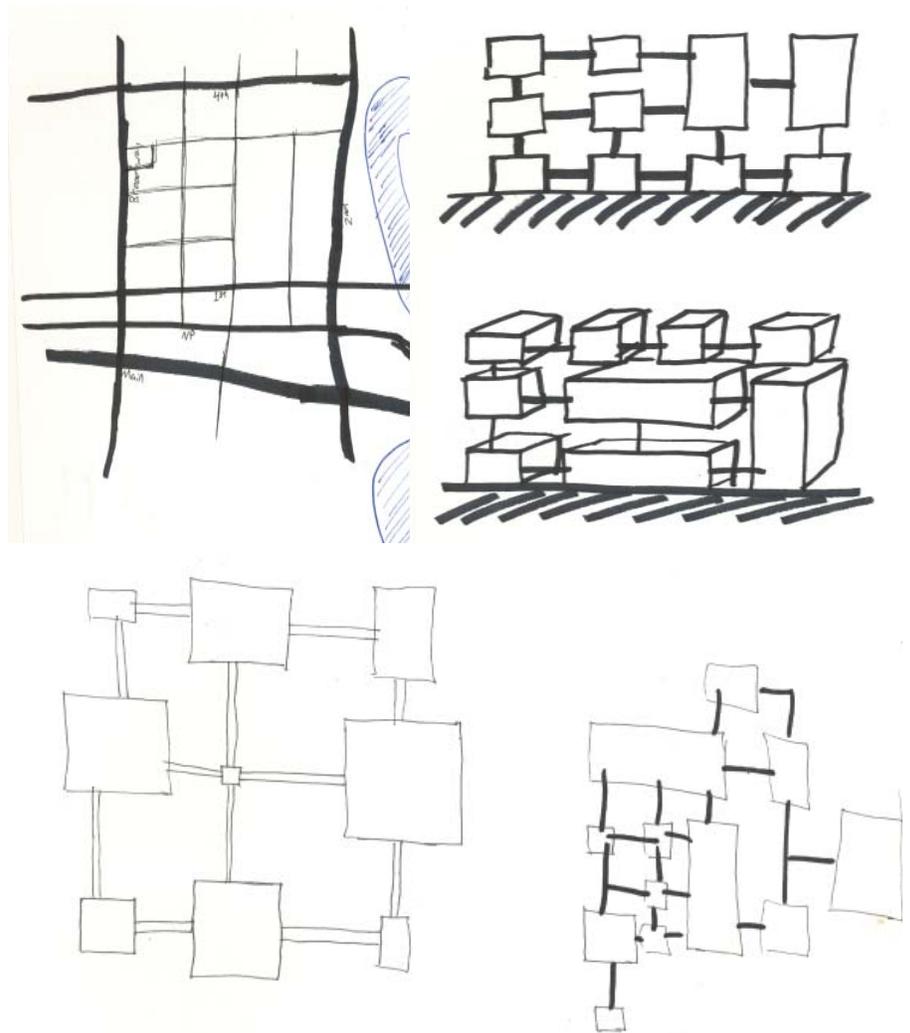
SQUARE FOOTAGES

	PARKING	100,000
	ENTRANCE	200
	LOBBY	1000
	BUILDING INSPECTIONS	2,500
	ENGINEERS	5,000
	PUBLIC WORKS ADMINISTRATION	3,800
	MAYOR'S OFFICE	2,000
	CITY COMMISSION OFFICE	6,000
	COMMISSION MEETING ROOM	15,000
	CITY ADMINISTRATION	5,000
	MUNICIPAL COURT	4,000
	CIRCULATION	6,500
	AUDITOR'S OFFICE	5,000
	PLANNING AND DEVELOPMENT	5,000
	RESTROOMS	1,500
	LOUNGE	1,000
	GREEN/OUTDOOR SPACE	2,000
	TOTAL	199,000 SQ. FT

DESIGN
THESIS
BOOK



This set of process models looks at the organization of spaces. Everything within the city hall is connected in some way or another. These two series show that cubes can be connected following the same grid pattern of they can be organically laid out. This was the first step in designing vertically.



The process started by looking at the grid of Fargo, specifically targeting the downtown area. I focused on different ways in which the grid could be applied and realized the grid needed to be recognized on a vertical plane. It was not enough to just design using the grid, the architecture had to reflect the grid. So I took the grid of the downtown area and flipped it on its end, and explored a vertical work of architecture.



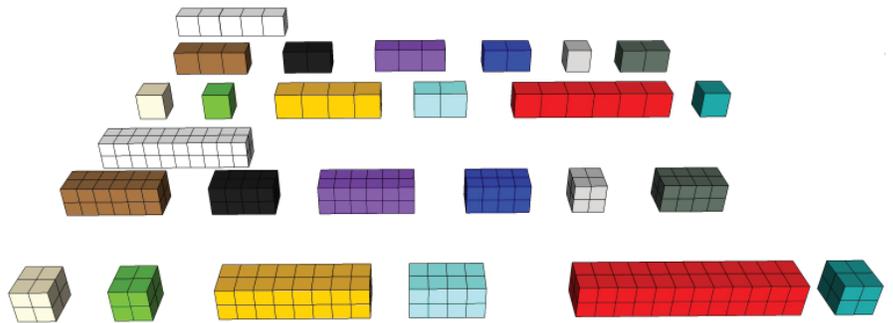
I quickly realized that the spacing between vertical elements was not working and I looked at creating a compact building that represented the grid. I used the downtown grid in a vertical form and proceeded to push and pull elements from it to create spaces.



This process resulted in a unique building form but it did not accurately reflect Fargo in the way that I wanted it to. So I took a step back and determined that Fargo's specific pattern was not the important part. The important feature was a generalized grid. I created a three dimensional grid and proceeded to fill it in with spaces. This method produced a design the reflected the grid and the effects that I was going for, but layout was still lacking that connection back to Fargo.



These are examples of some of the architecture that was produced from this method. The final products were a step in the right direction but they were not an ideal form for a city hall. These forms gave me good insight as to what I wanted the final product to look like, but adapting a floor plan to these structures was not really an option.



This is really the first step towards a final design. After determining the different spaces that comprises a city hall, I assigned each a color. I began working with cubes that were 25'x25'x25' and each space received an adequate number of cubes as needed to function. For example, The commission meeting room required six cubes, while the municipal court required only four. The next step was to rate the importance of spaces and begin laying them out. So I laid out the commission meeting room blocks out and proceeded to connect other spaces to it. This process allowed me to visualize basic floor plans as well as interactions among spaces and relative sizes. I soon realized that the spaces were

too large and decided to cut grid in half. The grid size was 12.5'X12.5'X12.5' which allowed for a more human scale and created better proportioned areas.



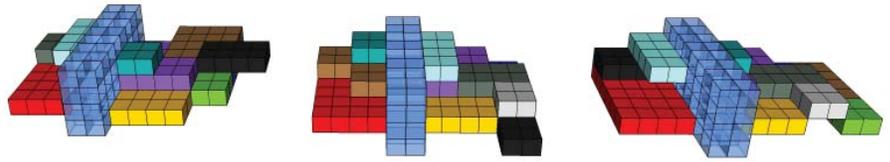
These are examples of the forms that were created via this method. The problem was that any of these forms would work, as in one was no better than another one. There was no way to evaluate the architecture.



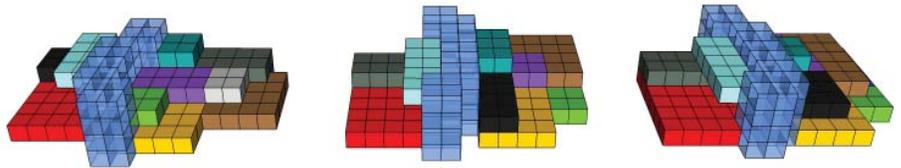
The way that I went about narrowing down my building selection was how the entrance sequence worked. I focused on adding and entry space was well as working in a centralized atrium. These design concepts looked at adding an atrium space on rather than designing around one.



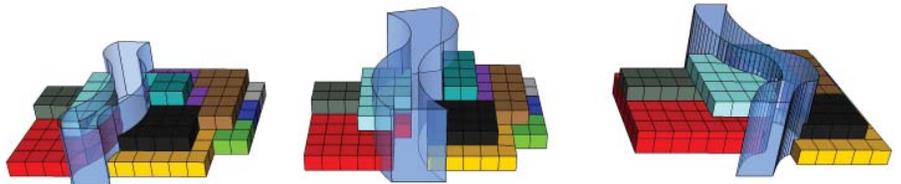
The next step was implementing an atrium and entry sequence and a major design element. I explored the idea of adding an atrium to the front of the building, on top of the building, and also running through the building.



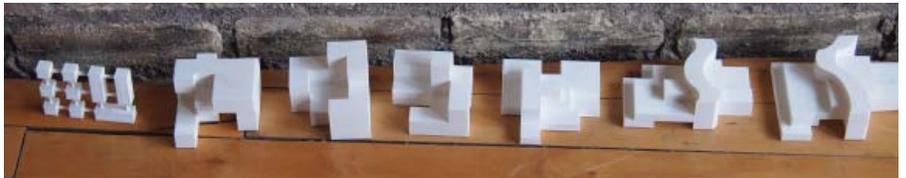
I determined that an atrium that ran all the way through the building was best for my design. It really embraced the idea of design based upon the infrastructure of Fargo. It allowed me to introduce the concept of the river and how powerful it is. The atrium split the building in two much like the Red River splits North Dakota-Minnesota, Whapeton-Breckenridge, Fargo-Moorhead, and Grand Forks-East Grand Forks.



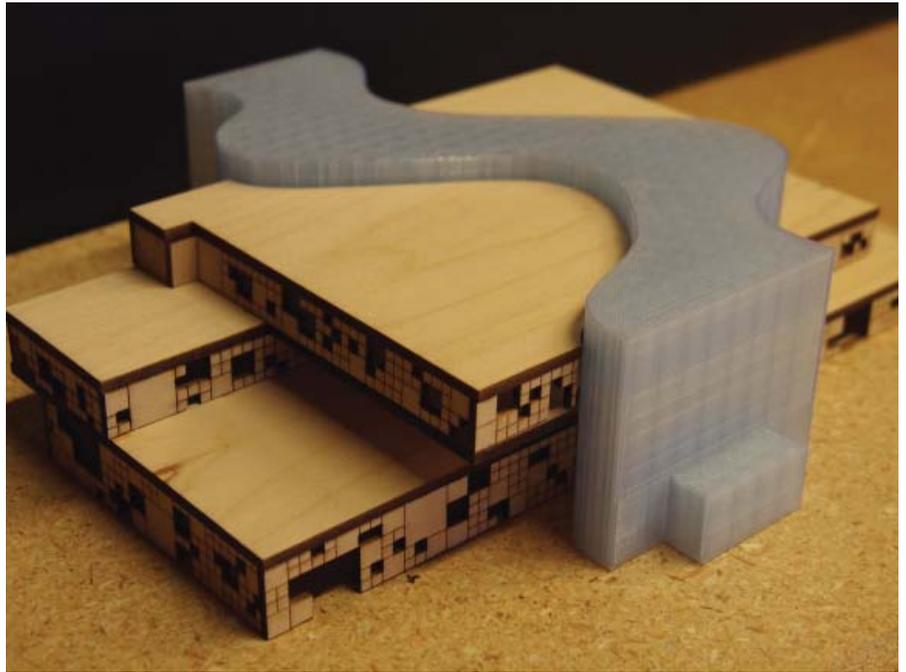
The next step was to give life to the architecture by interacting more with the concept of the river. The city is completely gridded off, but the river is a very organic form and yet they work together. So I looked at creating a more organic atrium and how that would effect the connecting spaces. Although the atrium is more organically designed, it was still based upon the grid.



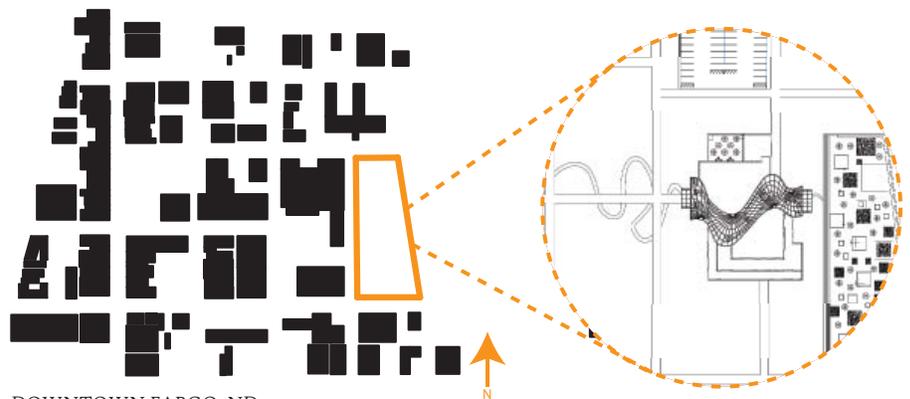
The final step in this pre-design phase was to create a contrast between the river element and the rest of the building. I examined the actual contour of the Red River and loosely modeled my element off of the part of the river that runs through downtown Fargo. The final building form is very rigid and follows the grid while the river element is free flowing.



This is a series of process models used to physically explore my building ideas. It shows how I started thinking in a vertical form and how it transformed into my final concept.



Final model produced using the 3D printers and laser cutting. It shows the relationship among the spaces and how the atrium splits everything in half much like the Red River does.

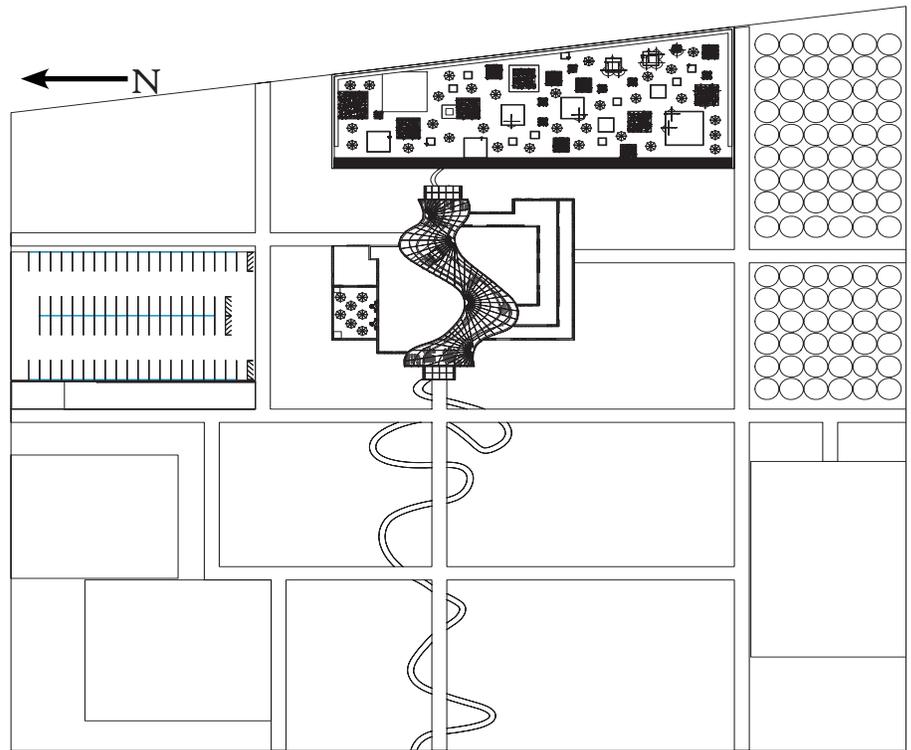


DOWNTOWN FARGO, ND

Final site located in downtown Fargo. This image shows the relationship between the site and the rest of the downtown area. The downtown area is a very urban space and this site allows for green space to be designed in for all of Fargo to use.

PROJECT

SOLUTION



This final site design shows how the new city hall sits on the site and interacts with the existing Civic Center and Public Library. A granite path, which weaves its way around the main pathway, is modeled after the Red River inside of Fargo's city limits. To the North of the city hall lies the parking. There are 100 underground parking for city hall employees and 75 short term parking spaces above ground. In the future I expect the civic center to be upgraded into more of a performance hall for the city orchestra and other smaller performances. I expect it to seat around ten thousand people and my parking lot will accommodate. A parking ramp could easily be constructed by building on the same supports as the underground parking. There is no need for a ramp now, but in the future there might be. To the South lies a geothermal well field used to heat and cool the building.



FRONT PERSPECTIVE

This front perspective shows the City Commission Meeting Room, the roof patio and the cafe/bar area. This image shows how transparent the meeting room is. It allows people to look in and see the local government functioning. This view also shows the hierarchy of spaces. The main spaces on ground level are the spaces that the general public will use every day. As one moves up the building, it becomes less important to the public and more geared towards the business side of city hall. The foundation of city hall is the same element that is the basis for the hierarchy.

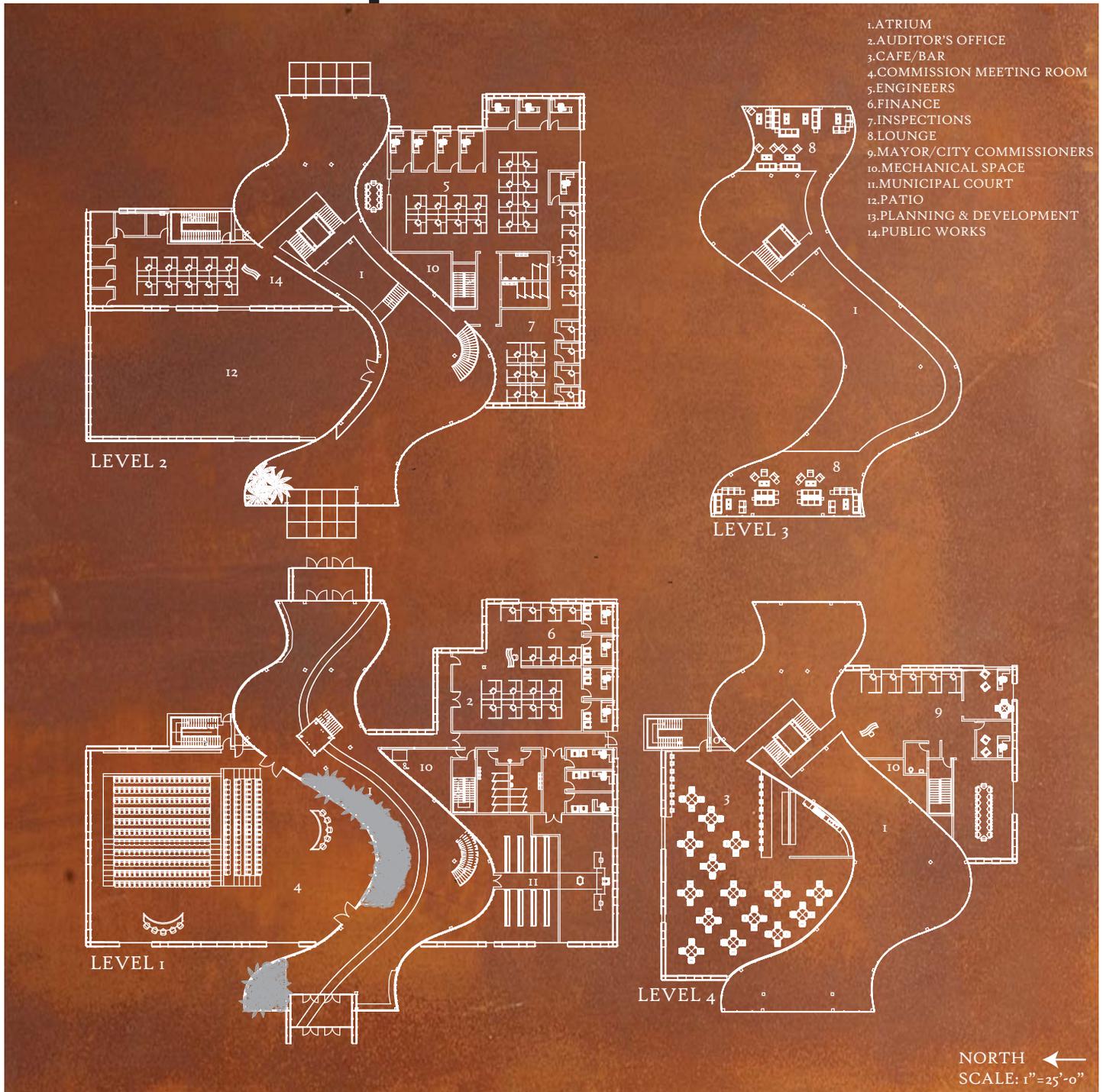


2nd STREET ENTRANCE

The view is of the other entrance, from second street and Moorhead. It shows how the zinc panels are arranged as well as how the building interacts with the atrium. This view also shows the other side of the city hall which is the municipal court, the business departments like engineers and inspectors, and the mayor's office. This side of the building also features a similar hierarchy that ranges from public spaces to private spaces. On the top floor is the mayor which is at the top of the local government and yet the public lounges are higher up yet. This elevation change shows that the people are always the most important and that they are in control of their government.

PROJECT

SOLUTION



Fargo is growing at such an outstanding rate that this building needs to have the building to grow and expand. These floor plans show how extra space has been designed in as well as how simple it would be to add an addition in the future.



ATRIUM

The atrium space features a floor lit glass element that continues on from the granite path outside. The feature follows the natural path of the river and guides visitors through the space to the glass elevator in the back or to the End Plaza. Aside from the glass floor element, the glass roof is the other highlighting feature. The unique pattern of mullions provides interesting shadow patterns and helps reinforce the idea of the organic river.



COMMISSION MEETING ROOM

The Commission Meeting Room features two seating arrangements. This view features a seating arrangement that combines both sections of seats while the floor plans (previous page) show how the space can be divided based upon the number of users. The smaller section of seats is used for standard city hall meetings and then the space can be transformed to fit around 300 people for larger meetings.



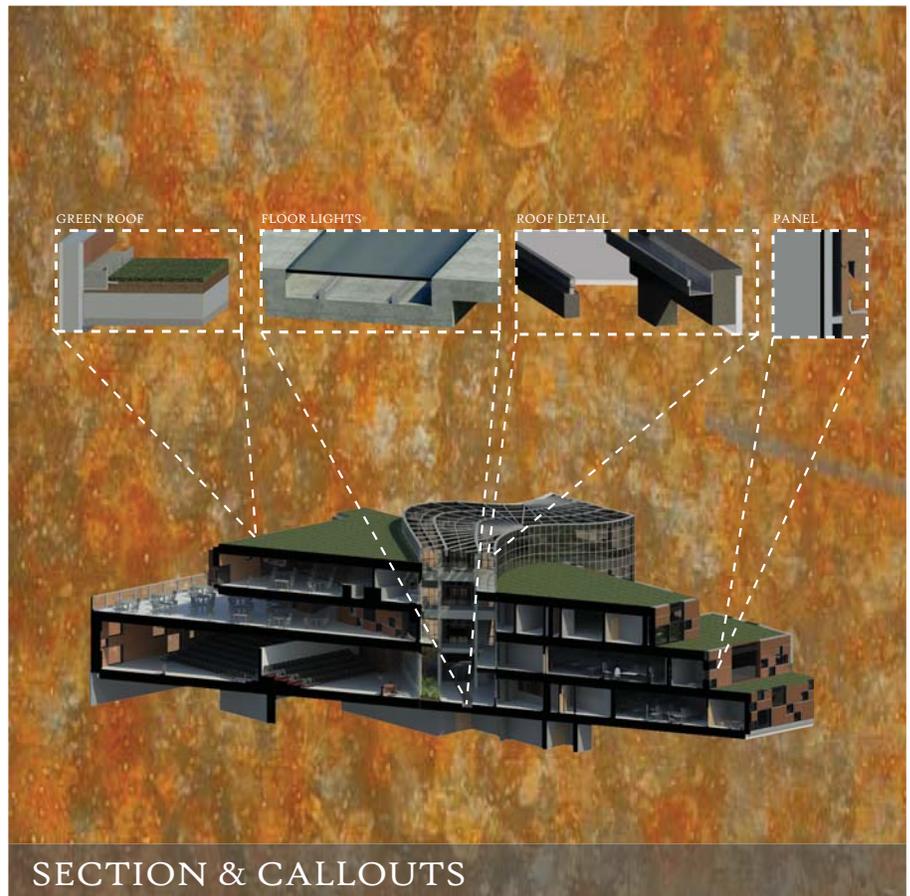
RIVER LOOKOUT

This view was the driving though behind the design. This spaces features a view that overlooks the end plaza, second street, and the proposed flood wall. It looks over all of the man made features and focuses on the river and its surrounding area. On the other end of the building, this same sort of space is created but the view focuses on downtown Fargo.



END PLAZA

The end plaza is sunk down below the level of second street and creates a noise buffer. The area itself is comprised of planter boxes and fountains arranged via the grid again. The space provides a variety of shaded areas and different types of seating for all to enjoy. This space is the escape from every day life that everyone needs. The change in environment and just being around the water and plants is a place to wind down and get away from the stress of the downtown area.



This section and callouts show the unique instances of the building. The far left detail shows the green roofs and how they work. The middle left shows how the glass river element working in the atrium space. The middle right shows the roof detail and how the gutters collect rainwater and disperse it to the rest of the building. The right detail show the panel system and how they interlock with each other.



This roof detail shows the unique, organic design of the roof mullions. It is meant to show the flow of the river and guide people through the space. The gutters funnel water to the radial points and from there it is used to water the indoor vegetation as well as some of the roof vegetation.



Standard steel frame structure and steel stud walls.



REFERENCE

LIST

American Architecture (2001), <http://www.american-architecture.info/USA/USA-Boston/01.jpg>

Boehm, Gero von. Conversations with I.M. Pei, Light is Key, Prestel, New York

Buchanan, P. The Big Rethink: Urban Design. The Architectural Review. Viewed December 4, 2013

Burgess, E. (2013, June 19). Fargo Official Want a New City Hall. Prairie Business

Carmona, M. Tiesdale, S. (2007) Urban Design Reader, P 5-52

Carson, J. (n.d.). Introduction by John Caron. Fargo History. Retrieved December 16, 2013, from <http://library.ndsu.edu/fargo-history/>

City of Fargo, (2013). <http://www.ci.fargo.nd.us/>

City Of Melbourne (2011), Community Infrastructure Implementation Framework

Cross, J. (2001) What is Sense of Place? Department of Sociology Colorado State University

Elmer, S. (2004) Public Infrastructure Design Manuel, Missouri City

Established Series Soils, (2005) Fargo Series

Fentress, C. W., & Campbell, R. (2002). Civic builders. Chichester: Wiley-Academy

Holl, S., Pallasmaa, J., & Gómez, A. (2006). Questions of perception: phenomenology of architecture ([New ed.]). San Francisco, CA: William Stout.

Infrastructure. (n.d.). Merriam-Webster. Retrieved November 16, 2013, from <http://www.merriam-webster.com/dictionary/infrastructure>

Krieger, A. (2005) The Architecture of Kallmann McKinnell & Wood

Krueger, D. (2012). Infrastructure Design Manuel. Houston: City of Houston.

Lyndon, D. "Civic Builders" Making Civic Places P. 16-20

Meyer, C. (2011) Urban Design Newsletter, Elevating the Sense of Place: The First Impression of Urban Spaces

Miller, S. (2008), PTI Journal, Engineering a Pei Cantilever- Dallas City Hall

Misa, T. Brey, P. Feenburg, (2003) A. Modernity and Technology, P 185-192

Mohnihan, D. "Civic Architecture:", Architectural Record. Vol. 142 December 1967, P. 107

Neoclassical architecture. (2013). Encyclopedia Britannica Online. Retrieved December 8, 2013, from <http://www.britannica.com/EBchecked/topic/1383512/Neoclassical-architecture>

Springer, P. (2009, March 23) From bad to worse. The Forum (Fargo, ND) pages A1

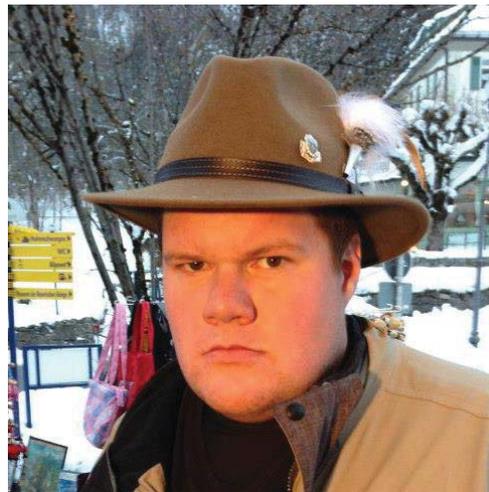
THE "FARGO FLOOD" HOMEPAGE. (n.d.).The Fargo Flood Homepage (Red River of the North). Retrieved December 10, 2013, from <http://www.ndsu.edu/fargoflood/>

Understanding Local Government. (2008). UNDERSTANDING LOCAL GOVERNMENT. Retrieved November 25, 2013, from <http://www.etu.org.za/toolbox/docs/localgo>

URBAN DESIGN. (n.d.). Urban Design. Viewed December 1, 2013, from <http://urbandesign.org/urbandesign.html>

PERSONAL

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QUOTE "The value of anything that you do is
best measured by what you do next."

-Mike Christenson