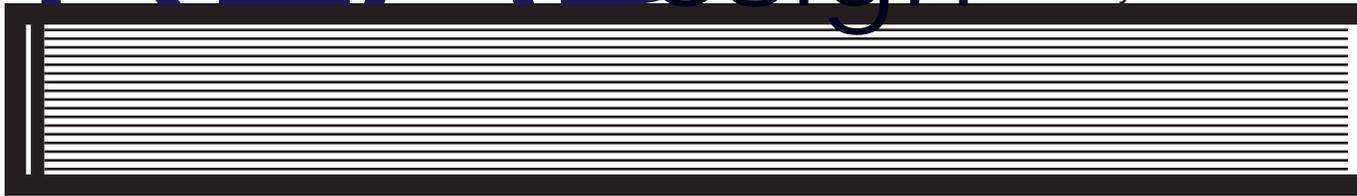
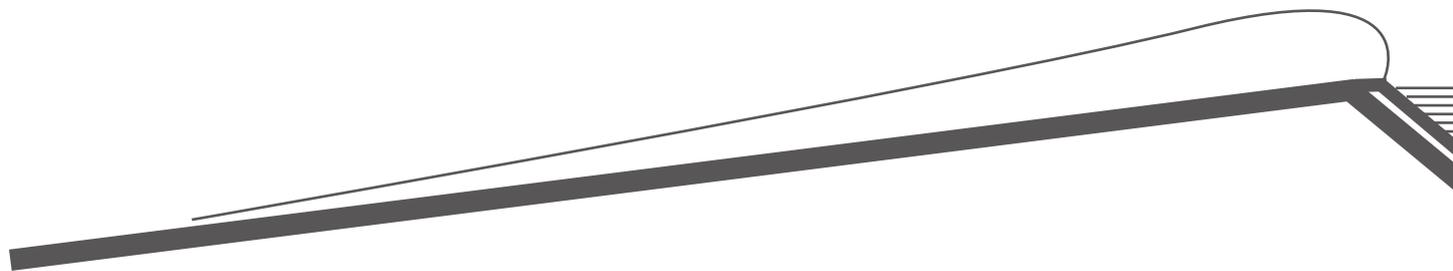


READesign

Ryan Thomsen





READesign

Architecture that Promotes Knowledge

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

By
Ryan M. Thomsen

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



Primary Thesis Advisor - Ronald Ramsey



Thesis Committee Chair - Mark Barnhouse

October 2012
Fargo, ND

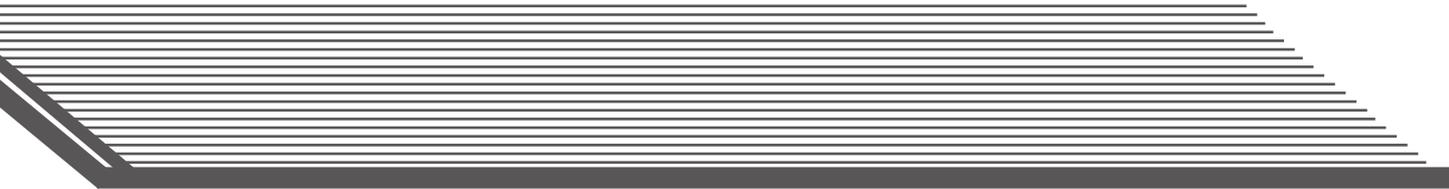




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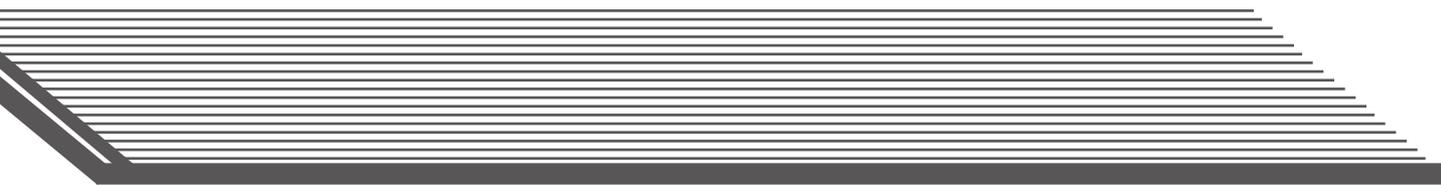




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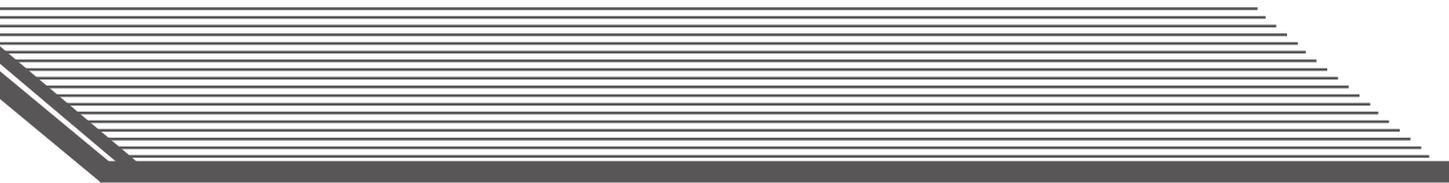
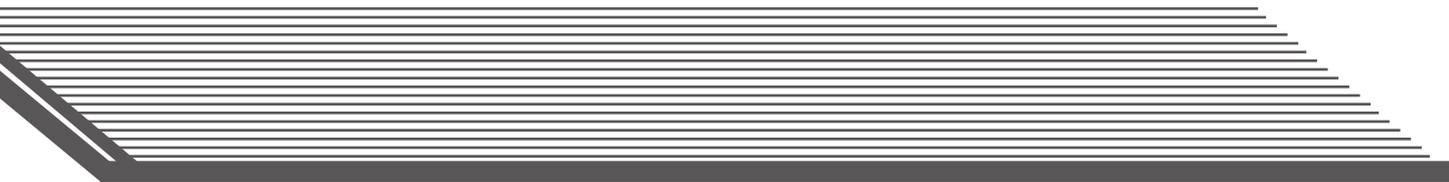


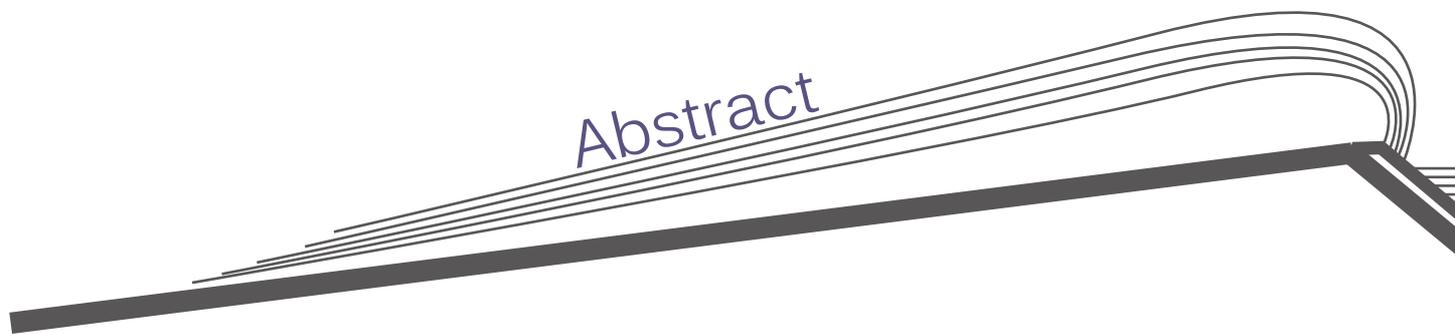


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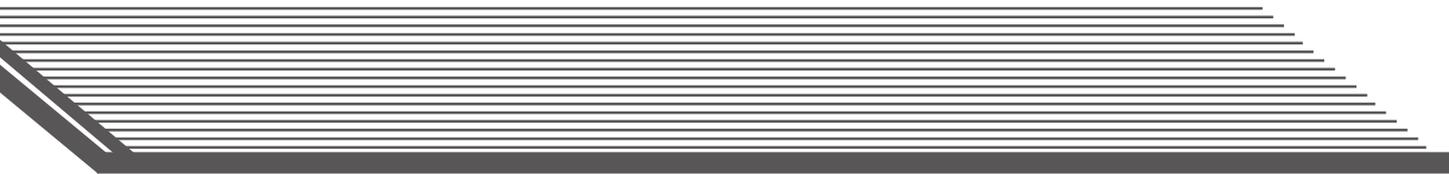
This thesis, READesign: Architecture that promotes knowledge, will focus on an investigation of the question, how can architecture enhance education and learning. The typology for this examination will be a mixture between a typical library and a mix-use learning facility with a site located in Kansas City, Missouri. The guiding idea behind this investigation is, “why are libraries around the nation fading away.” The justification behind this project is that “libraries house our past, present and future knowledge.” The theoretical premise, unifying idea, and problem statement will be researched in this project through the course of this thesis project.

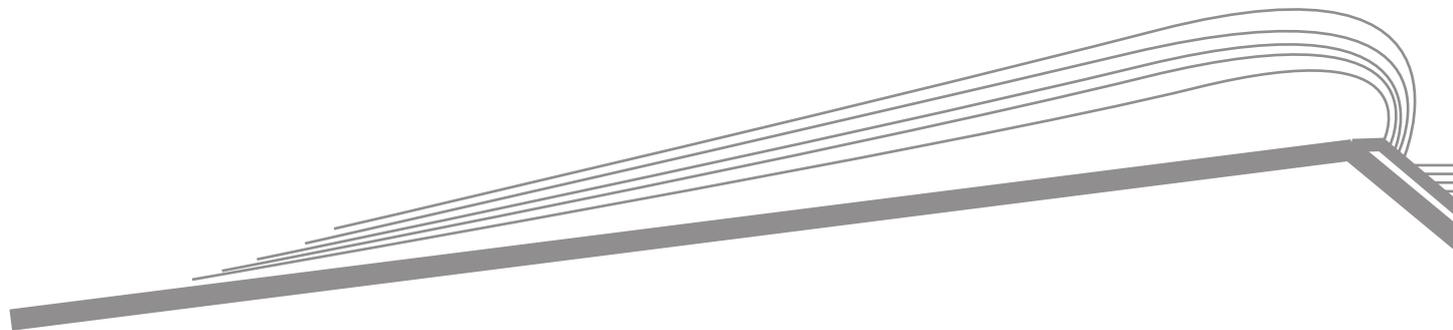
Keywords: Innovation, Knowledge, Redesign



Problem Statement

How can architecture enhance education and learning?





Statement of Intent

Statement of Intent

A decorative graphic at the bottom right of the page, resembling the spine and pages of an open book. The spine is a thick, dark grey line that curves upwards and to the right. From the top of the spine, several thin, parallel lines representing pages fan out towards the right edge of the page.

Typology

A combination of traditional library and learning center.

Claim

Architecture has the ability to stimulate people's minds through means of interactive design.

Actor[s]: The architecture that promotes knowledge.

Action: The enhanced mind with interactive design.

Object: The public will receive better quality within a learning center.

Premises

Actor -> Claim

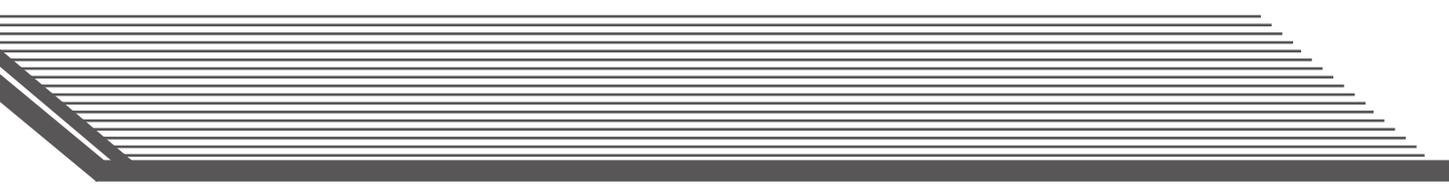
Architecture has the ability to stimulate a person's mind within its spaces.

Action -> Claim

Certain types of spaces, through interactive design, have the capability to stimulate a person's mind. Different angles, elevated ceilings or prominent lighting can cast a different mood that elevates certain types of learning.

Object -> Claim

Those that will pass through and reside in a stimulating learning environment will have a much greater ability to retain knowledge. A better location that will allow for people to learn without the frustration of a limited environment.





Statement of Intent

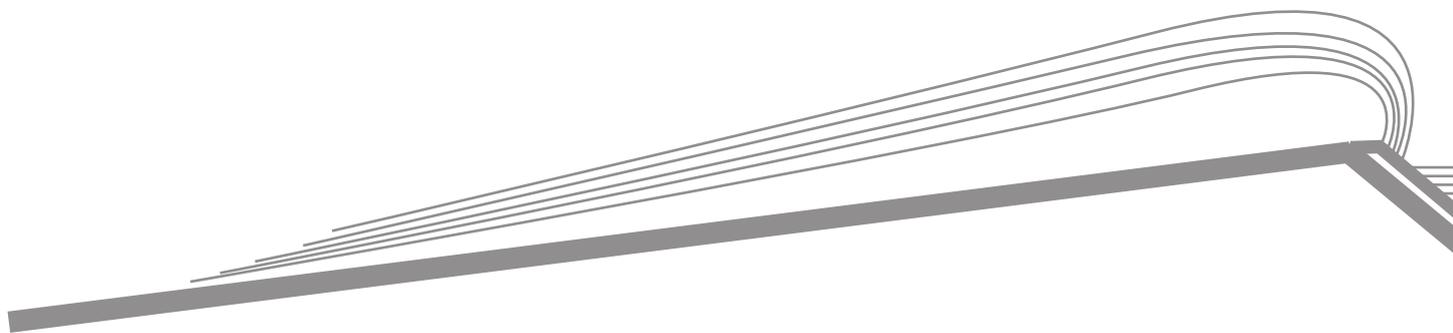
Theoretical Premise/Unifying Idea

Intertwining architecture with knowledge will allow for a successful learning complex with a push towards a rethought version of a library. With the given standards of a library at minimum, the future library will be focused on captivating a person's mind and allowing them to reach a maximum thought process.

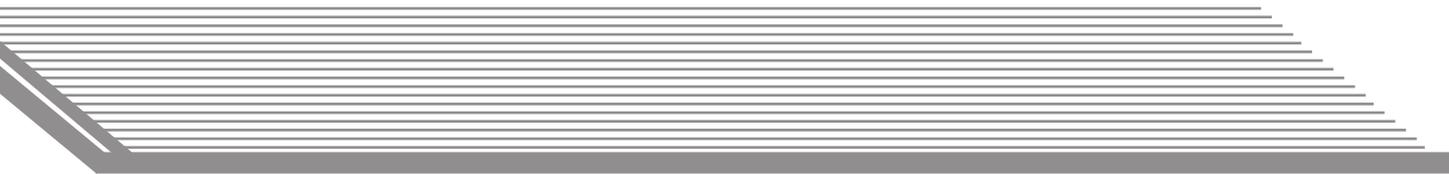
Project Justification

I find this to be an important topic of concern due to the decrease in library usage. A new way of gaining knowledge for future generations is key. Knowledge of our past and present are continually added to libraries and without them continually feeding minds, one day our history will be forgotten. To rethinking the way a library works, more people can be attracted to and want to spend more time within one.

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Proposal



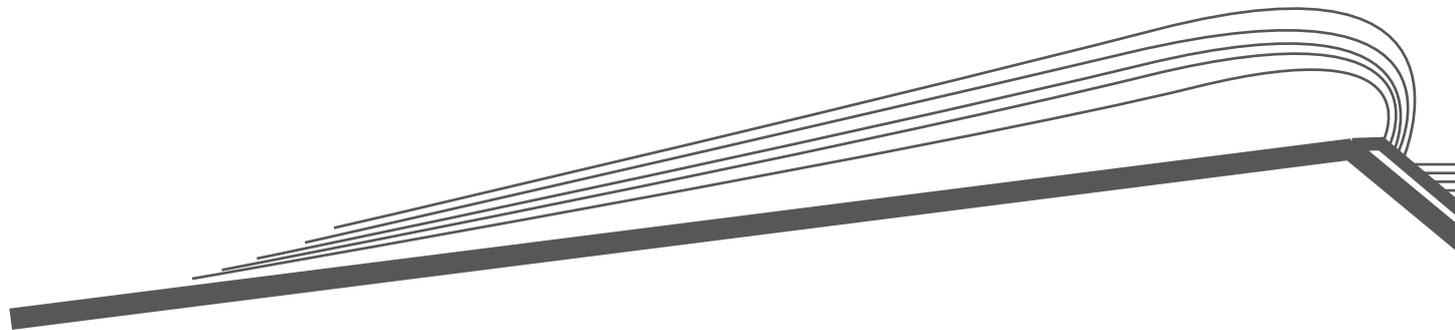


Education is a major importance towards our society. From grade school to college, we are constantly growing and learning. So, why is it that I have only been to a library a handful of times in my life? Why have I only been in a library because I was forced to in elementary and high school? This thesis will examine how architecture can promote the sense of learning and drive for future generations. With the sensible design, to understanding the future generations, I will use architecture to create a very welcoming environment that will pull for the thirst of knowledge

In today's society and economy, public libraries are becoming more and more unused. This in return will limit the continual source of information that everyday people should be able to get. We cannot lose information of the past; this is a mistake that is continually made every single day. Every single person makes day to day mistakes, and all these mistakes trigger us to learn from them. This is why we cannot lose libraries and why we cannot forget the knowledge of the past. We have fought in wars, killed people and made many enemies. Those are only the tip of the iceberg when it comes to mistakes that have been made in the past. We cannot let history repeat itself, because if we continually do, we will never grow as humans. The only issue is libraries of today are still using the old ways of thinking.

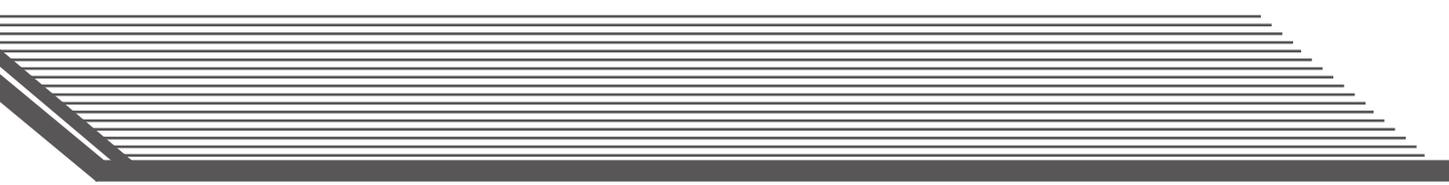
They continue to use call numbers to find books, still use old ways of checking out books, and even still hand out library cards. Why cannot we find a better method now? Why can we not incorporate an interactive system that will easily direct us to a library book in a stack? Why can we not have a scan code that will let us easily be able to check out a book? Why can we not use a finger scanner instead of a library card? With the use of technology and innovative ideas, we as architects can establish a new form of library that will attract everyday people around the clock. Changing the way we find books, change the way we get to the information needed, and even changing the way we are aloud entrance into the building will and can create a new form of library that will refuel the fire to learn that there once was.

As the architect of this project, I am inclined to create a library that incorporates everything that life can offer us of today. I have the drive to create a library that I want to go to, and that will be the biggest challenge of all. Throughout my life, I have always been told to challenge myself and be the best that I can be. Why would I not want this library to be the best of the best that there is to offer right now. I am my own biggest critic and that is the full that really will drive my need to create an amazing library that will be sustainable, innovative and downright great place to be.



My thesis will seek to become the primary way of designing libraries of the future. It will start by being very sustainable within itself. The library will incorporate a lot of natural light that will keep the library well lit and very warm and welcoming. With the use of the natural light, this library will save on wasted electricity allowing use of other electronic needs in its place. The library will also incorporate a green roof that will allow guests to bring books outside as if they were in a park or field. The library will then continue to be very futuristic with the use of technology. Integrating technology with the architectural design can only further the way people can act in the spaces provided. This library will also pay close attention to interactive design. Being able to continually stimulate the guests mind, this library will keep everyone awake and wanting to more information.

The surge of knowledge is different to everyone, and to everyone learning is different. I hope that this thesis will be an example of a way in which we look at how to design a library; a new way of informing people about our past and present; a way to allow people to learn and grow. We cannot force people to want to learn, but with this thesis I want to be able to give people the location to learn. Throughout this whole thesis you will see my approach at designing a library that will evoke the sense of learning and promoting knowledge. It is a design that will expectantly be the new way of designing libraries for the future generation; a generation of technology and interaction.





Client Description

The Library, in addition with the museum, exhibition rooms and restaurant, will serve as a central location for the Power and Light Distric area in Kansas City, Missouri, to gather knowledge and educational needs. Being placed in the Power and Light District of Kansas City, the library will not only offer needs to the everyday public, but it will also serve as an essential hub for the smaller surrounding educational centers.

Owner

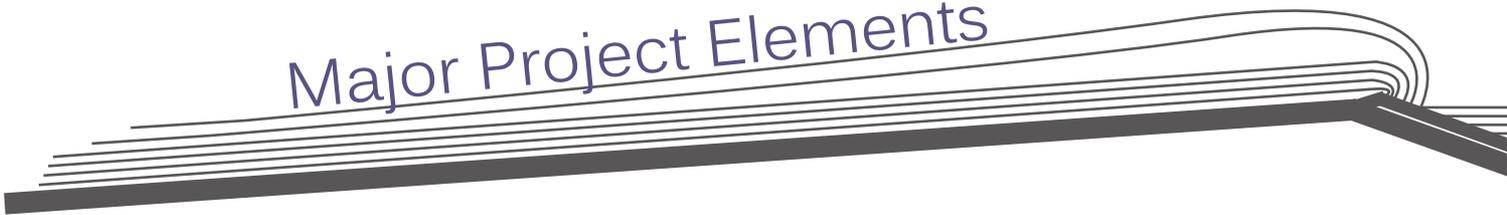
The Library will be owned by The City of Kansas City, and opened to the public with normal weekly business hours. The City will rent out the library's spare rooms/conference rooms to be used for everyday purposes.

Guests

Housing a very nice restaurant, this Library will provide extra needs services to keep everyone fed. The restaurant will be open Monday through Sunday with appropriate business hours. Being very involves in the community, this library will offer its exhibition rooms to the local artists to display their work. The artists will also help to bring in different sorts of crowds.

Workers

This Library will be operated by the citizens of Kansas City. These workers will include the librarians, museum/exhibition room staff, chef, kitchen staff, wait staff, bartenders, maintenance staff, reception staff, and custodial staff.



Major Project Elements

Educational Spaces

The library will not only provide literature to the public, but will also include additional spaces that will give the public many different learning methods.

Library... Reading Area... Studying Area... Museum

Library

The Library will be a multi-use building. Combining the library with other learning centers will give guest the ultimate learning experience.

Reception Area... Administration... Conference Rooms... Offices... Exhibition Rooms

Restaurant

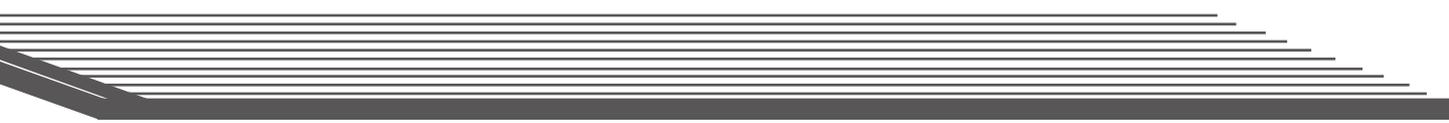
The restaurant will serve as a high quality piece to the library. It will allow for the library to become a prime piece within the City of Kansas City.

Kitchen... Bar... Dining Area

Rooftop Green Space

The rooftop will be a green roof that will let library guest the chance to read and learn outdoors without having to leave the library.

Rooftop Green Space



Site Information

Region of Midwestern United States

The site is located in northwestern Missouri, on the border with Kansas. Kansas City is the largest city in the U.S. state of Missouri and is the predominant city of a metropolitan area of more than two million people spanning the Missouri–Kansas border.

Kansas City, Missouri.

The site is located in downtown Kansas City, Missouri. This area is called the Power and Light District, offering over a half million square feet. The Kansas City Power and Light District is the midwest's premier entertainment epicenter. With more than fifty shops, restaurants, bars, and entertainment venues, the district offers something for everyone.

Thesis Site

The site is located in the Kansas City Power and Light District. The land is located at 1019 Cherry St. Kansas City, MO. The site is currently half parking lot and half undeveloped, this would be an ideal expansion point for the district.

Importance

This site provides a platform for a new and redesigned Library to grow and spread nationwide.

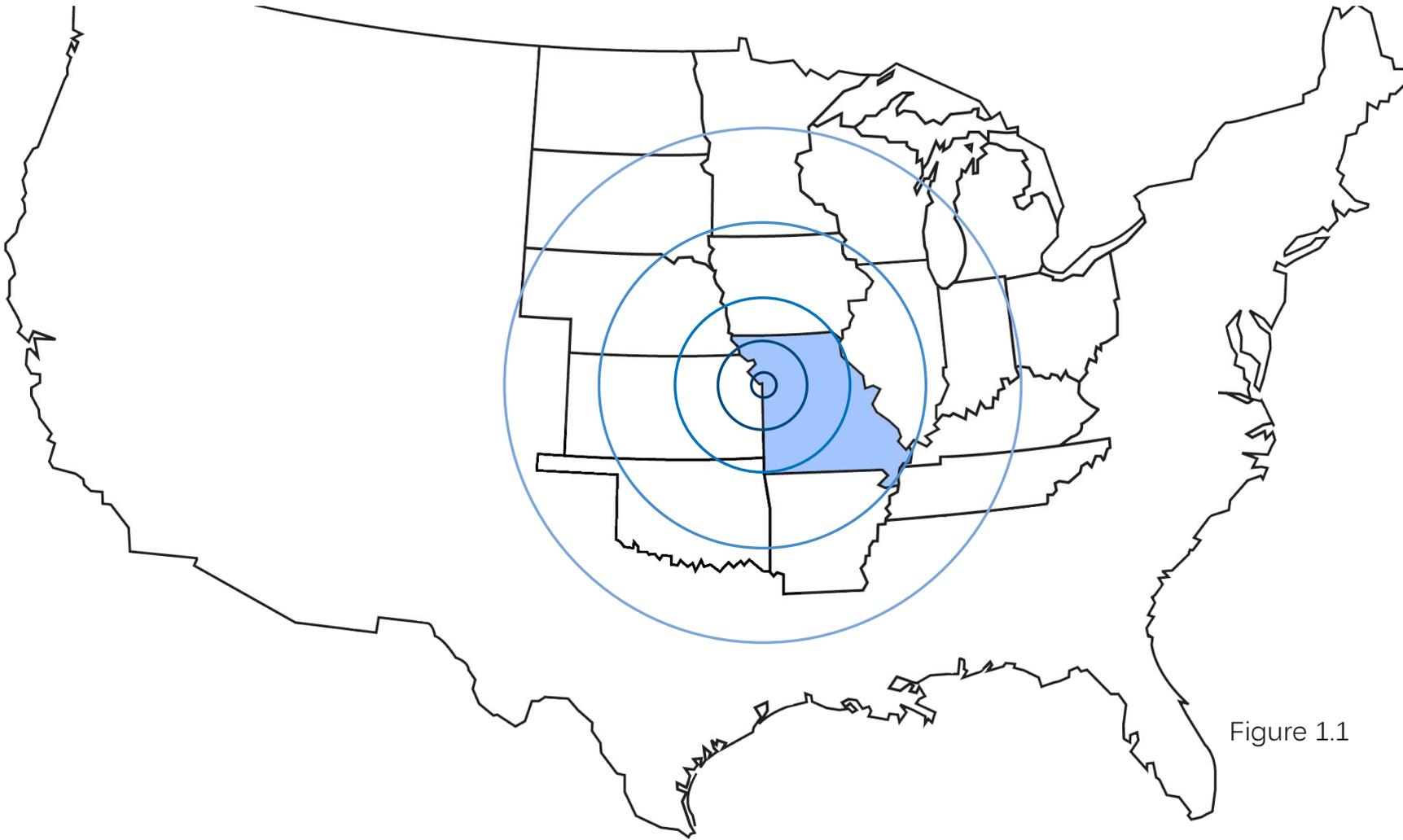
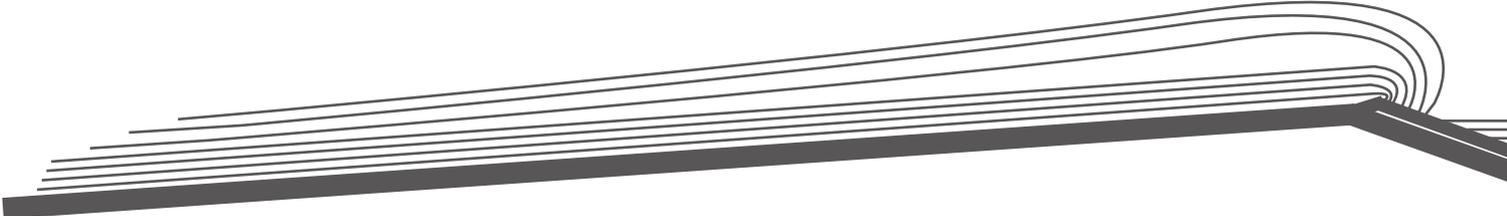


Figure 1.1



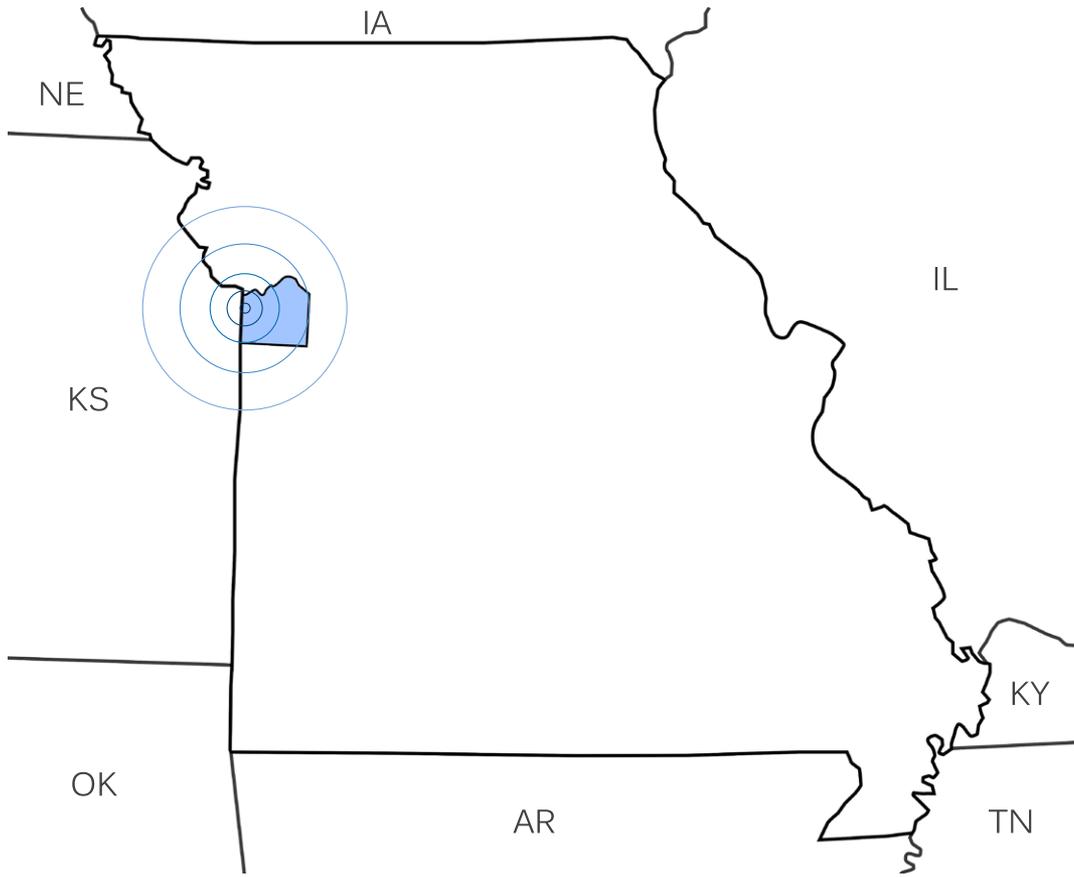


Figure 1.2

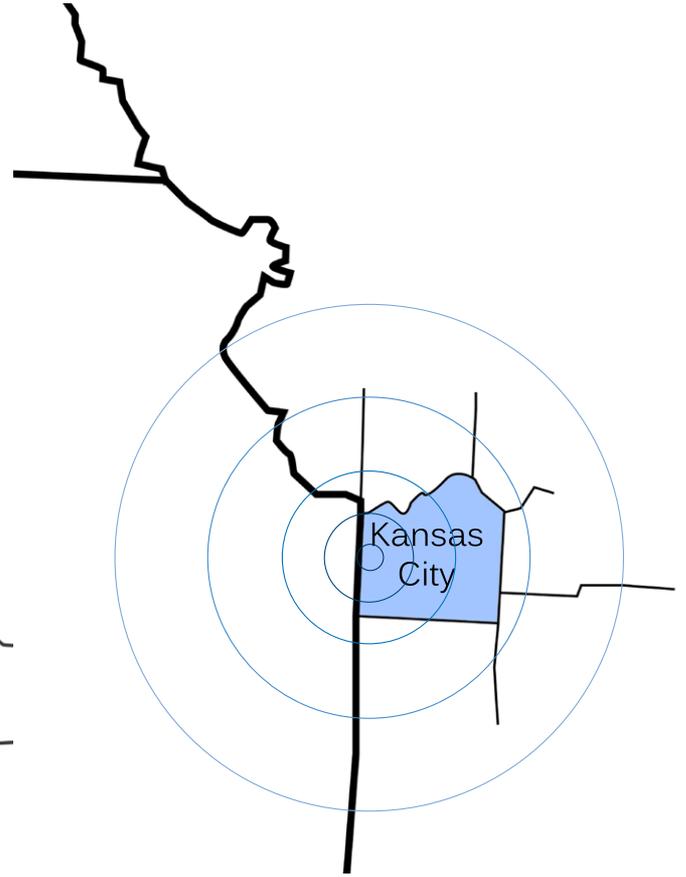


Figure 1.3

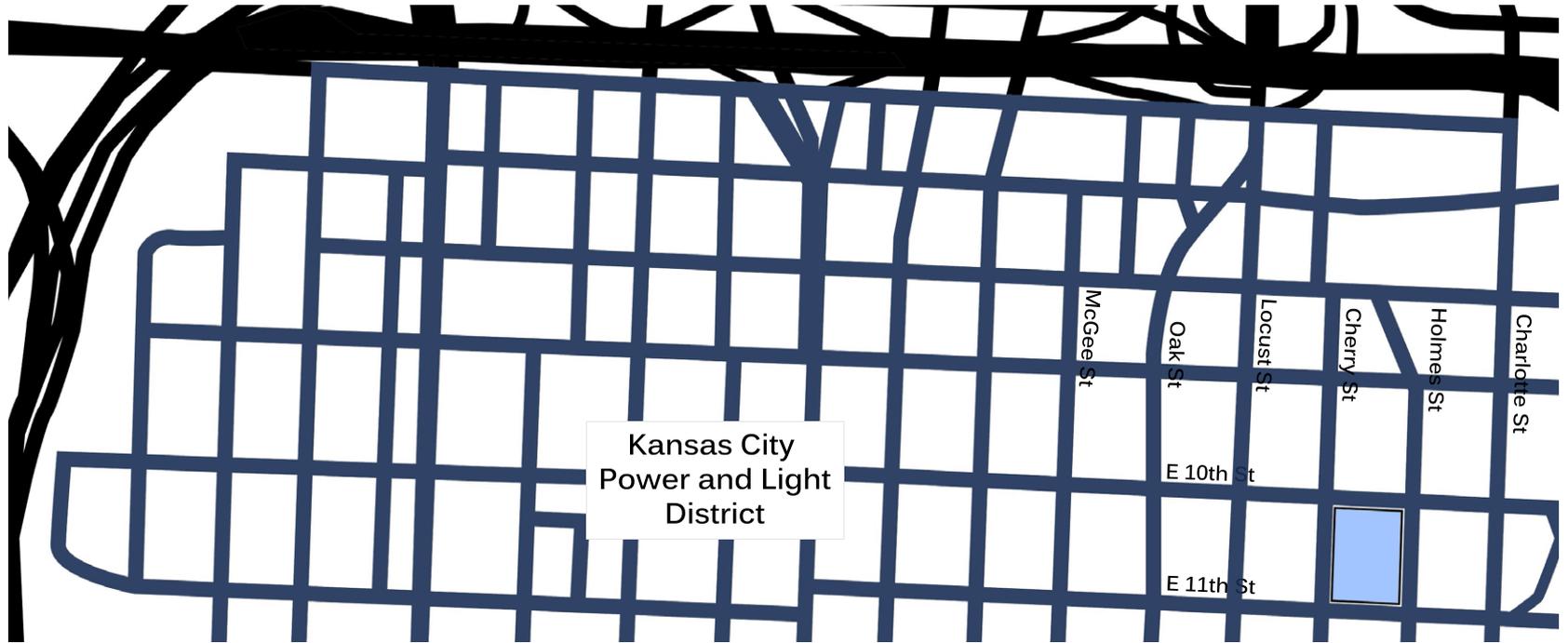


Figure 1.4



Figure 1.5

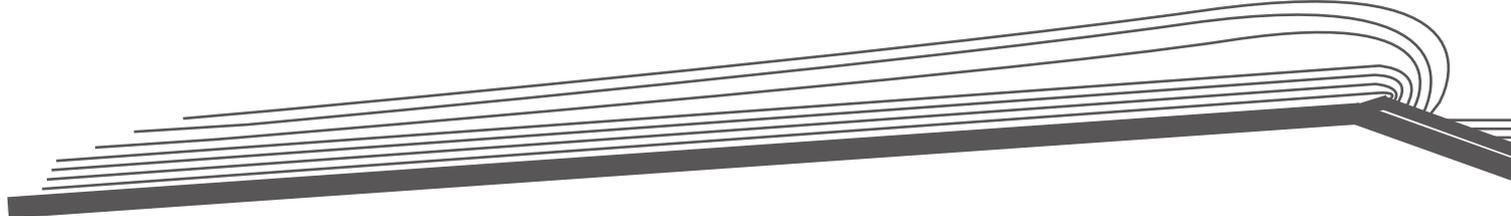




Figure 1.6



Figure 1.7



Figure 1.8

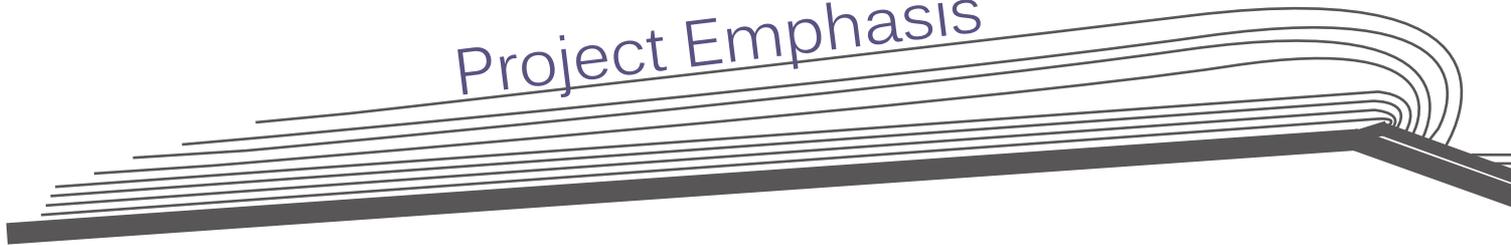


Figure 1.9

Landmarks

Kansas City's commitment to its parks and landmarks is well known throughout the country, making it one of the most beautiful cities in America. The landmarks and icons you find today range from statues paying tribute to the city's history to whimsical and contemporary pieces by renowned artists. Following are some of the local favorites and most-photographed icons in the city

Project Emphasis



This thesis project will focus on how architectural design can help influence and stimulate the human mind to learn more efficiently. Ultimately, the goal would be to completely update the way that libraries are preceded and designed.

This project will examine the interactive design through the study of light, people, and environmental conditions. The study of technology, light and spacial organization will be used to better the efficiency of the library system.

A Plan for Proceeding



Research Direction

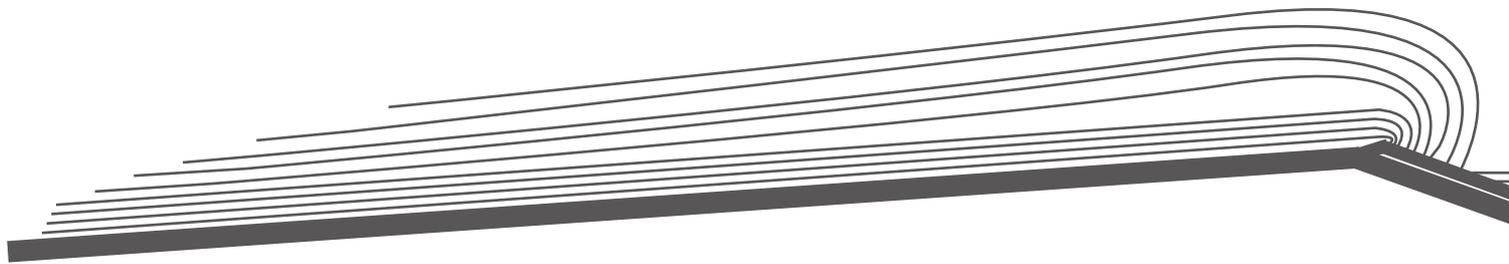
Research for this thesis will be directed throughout the entire thesis project. Research will be conducted with a focus for a larger understanding of the theoretical premise/unifying idea, project typology, including further investigation of the site, existing Libraries, and the programmatic requirements of the projects.

Design Methodology

The methodology I will employ throughout the research and design will follow a mixed method approach. The mixed method approach will include quantitative and qualitative research and will be conducted using a concurrent trans-formative strategy. The implementation of this methodology will occur throughout the research and design process. The process of analyzing, interpreting, and reporting of results will occur throughout the research and will be presented in text, graphics, and video. The quantitative data will include statistics and scientific data. The statistical data will be gathered and analyzed, and the scientific data will be obtain through instrumentation and equipment. The qualitative data will be gathered from direct observation, local survey, archival search, and direct interviews.

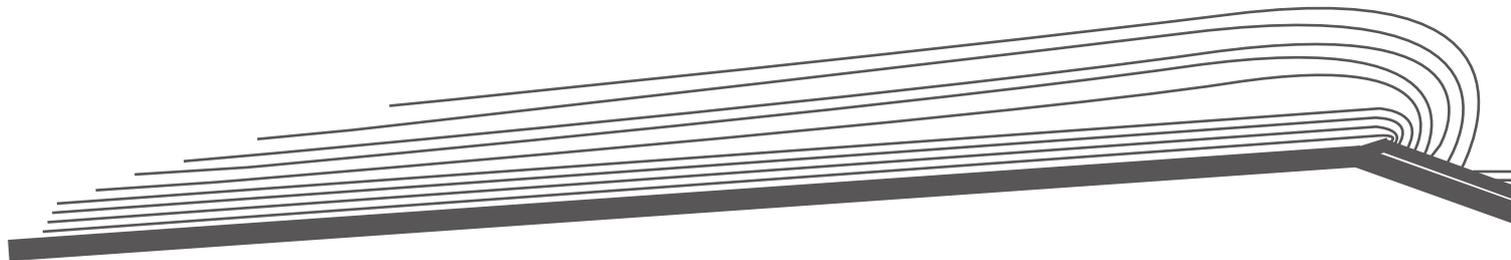
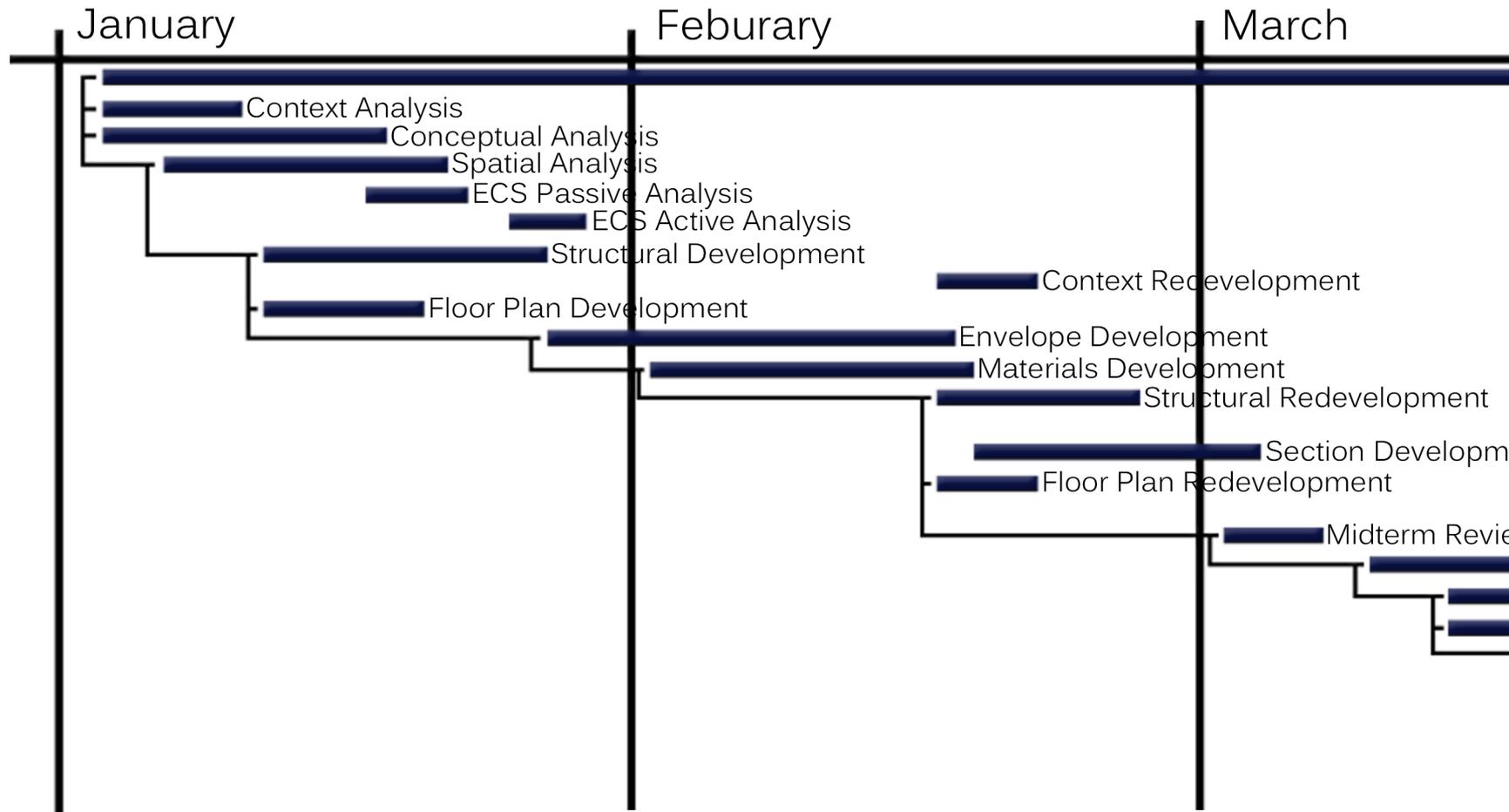
Documentation of Design

This thesis project will be documented continuously throughout the process of design. Updated documents and media will be created showing any work conducted during that time span including site video footage, drawings, sketches, models, research, and analysis. A physical copy and electronic copy of the design process will be organized in a binder that will be readily available for review.



Task	Work Days	Dates
Project Documentation	88 Days	1/9 - 5/10
Context Analysis	5 Days	1/9 - 1/15
Conceptual Analysis	10 Days	1/9 - 1/22
Spatial Analysis	10 Days	1/11 - 1/24
ECS Passive Analysis	5 Days	1/21 - 1/25
ECS Active Analysis	4 Days	1/28 - 1/31
Structural Development	10 Days	1/16 - 1/29
Context Redevelopment	5 Days	1/18 - 1/24
Floor Plan Development	6 Days	1/16 - 1/23
Envelope Development	14 Days	1/30 - 2/18
Materials Development	12 Days	2/4 - 2/19
Structural Redevelopment	8 Days	2/18 - 2/27
Section Development	10 Days	2/20 - 3/5
Midterm Reviews	5 Days	3/4 - 3/8
Project Revisions	12 Days	3/11 - 3/26
Renderings	21 Days	3/15 - 4/12
Presentation Layout	7 Days	3/15 - 3/25
Preparation for Presentation	8 Days	4/5 - 4/16
CD of boards to thesis advisor	0 Days	4/15
Plotting and Model Building	12 Days	4/5 - 4/22
All Exhibits installed on the 5th Floor	0 Days	4/25
Thesis Exhibit	3 Days	4/23 - 4/25
Final Thesis Reviews	6 Days	4/25 - 5/2
CD of Final Thesis Documentation Due	0 Days	5/6
Final Thesis Documentation Due	0 Days	5/10
Commencement	0 Days	5/11

Figure 2.1



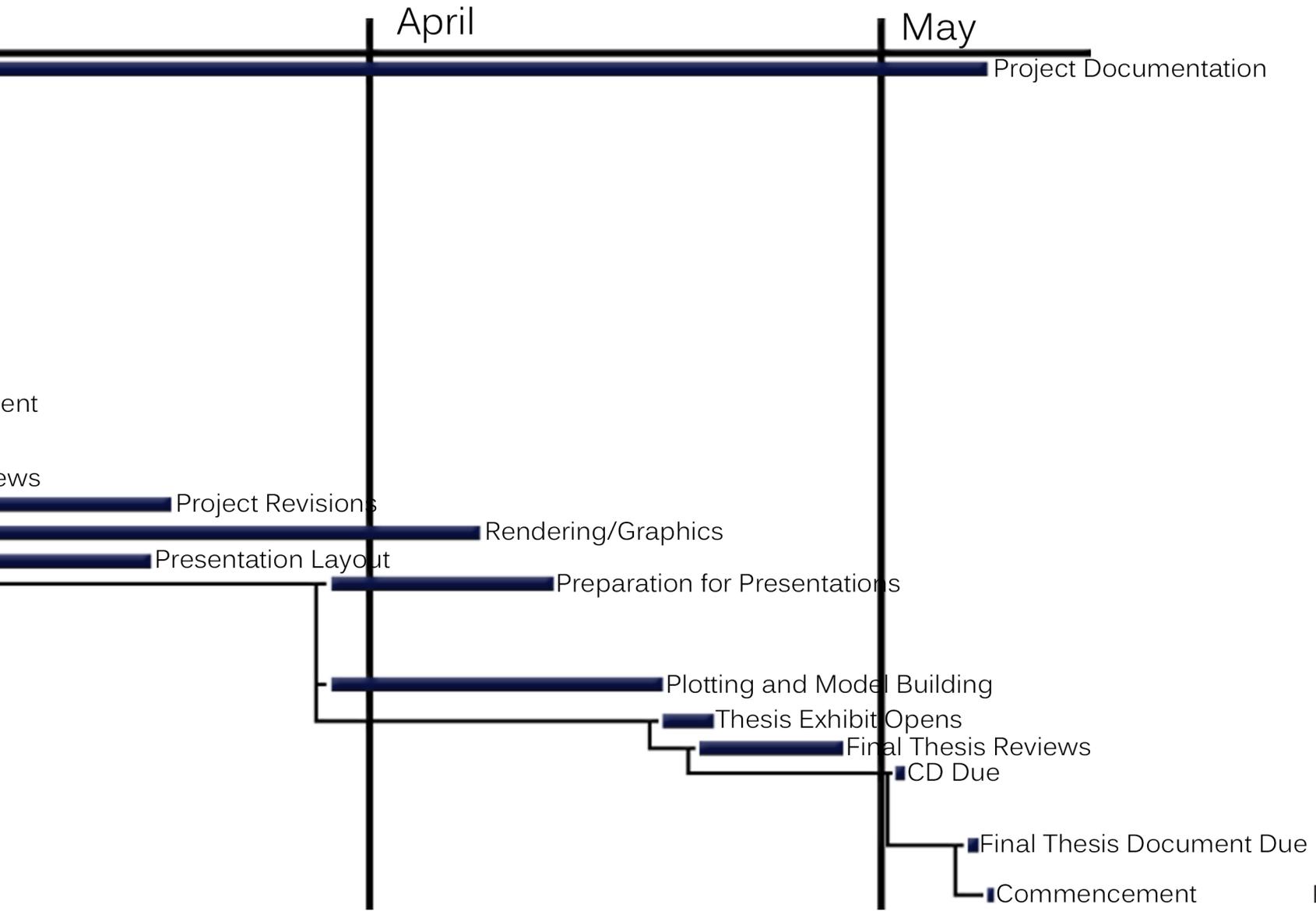
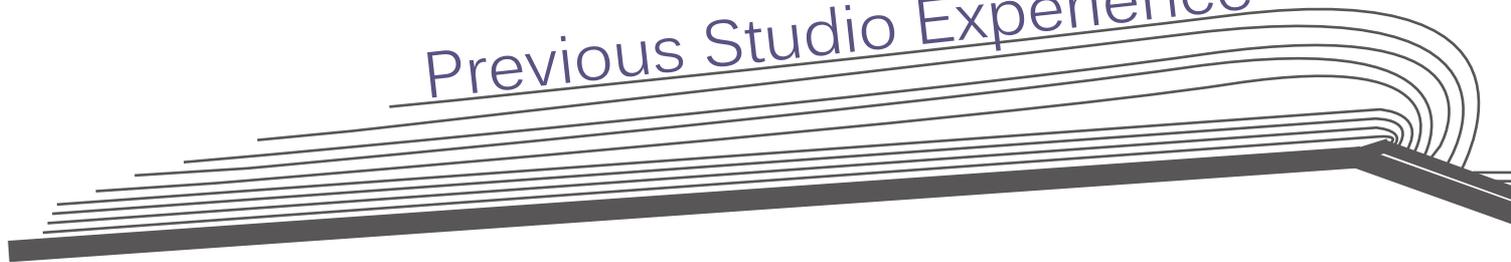


Figure 2.2

Previous Studio Experience



Fall 2009

Joan Vordebruggen
Tea House
Boat House

Spring 2010

Darryl Booker
Montessori School
Dwelling

Fall 2010

Paul Gleye
Recreational Center
Fire Station

Spring 2011

Mike Christianson
Sixth Street House

Fall 2011

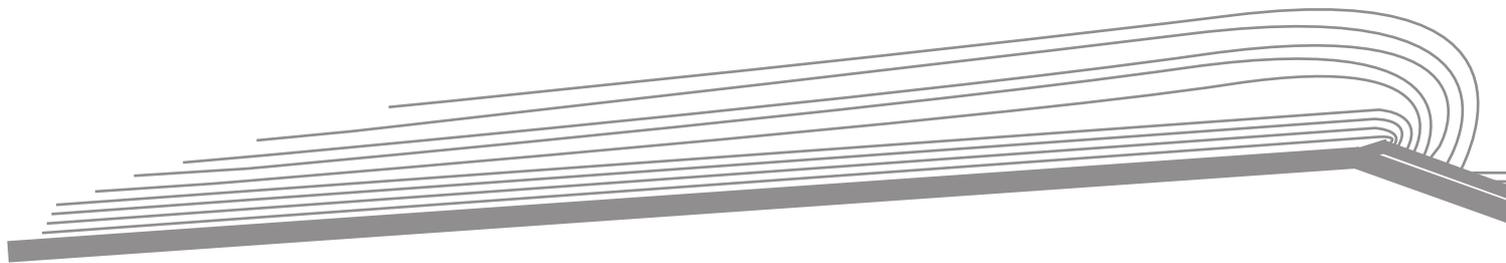
Bakr Aly Ahmed
High Rise

Spring 2012

Paul Gleye
Semester Abroad - Urban Design

Fall 2012

Regin Schwaen
Museum Addition



Program Document

Research Results and Goals



The research reflecting the theoretical premise/unifying idea is compiled into the following results: Definition of a Library, Library Understanding, Basic Interior of a Library and the Future for Libraries. Through this research I can gain the knowledge that will help me support my thesis design.

Definition of a Library

What is a Library? A library is a world in its own, a place where treasures are stored and kept safe throughout time. Libraries house information from the past; they hold the present and are the key source to the future.

“Library – a definition

The standard dictionary definition (derived from the New Collins Concise English Dictionary, 1974) of a library distinguishes between the library as space, the library as collection and the library as institution. A library either:

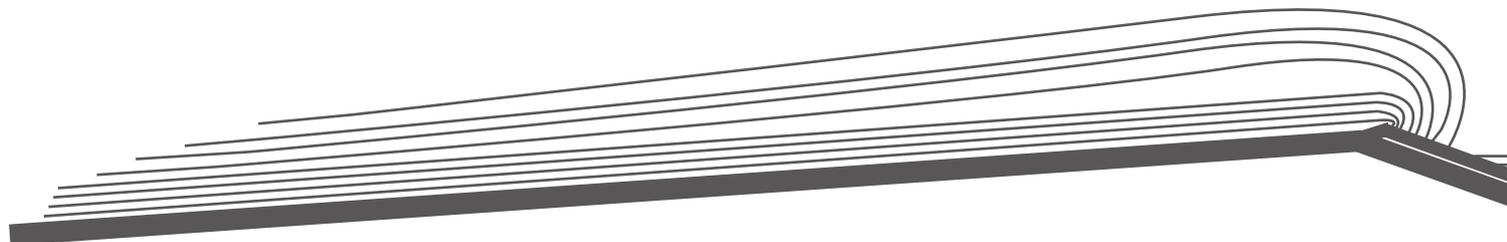
- A room or set of rooms where books and other literary materials are kept
- A collection of literary materials, films, tapes. Etc., or
- The building or institution that houses such a collection.

(Edwards, 2009)

What is a Research Paper? A research paper is a document that gathers information about certain topics. What is a research paper without libraries?

The topic of my research paper is the innovation of libraries. The topic will explore how libraries need to adapt to the new ways of life through technology and interactive design. By looking at the old to create the new, I will be able to achieve this goal. To me, it is interesting how libraries are slowly becoming more and more unused. Without libraries, I would not be able to gather books and sources to write this document. This needs to change, libraries need a comeback.

There are many different types of libraries, ranging from there many different functions. For example, some of these different libraries include: National Library, Public Library, Academic Library, Virtual Library, Special Library and Professional Library. My main focus will be on the use and design of a Public Library. A public library focuses mainly on book-based set ups. It deals with loaning out books rather than just referencing. Public libraries deal with children, elderly and local study dealing a lot with the support of the community and social activities. The public library helps cement together a community; it provides meeting places, IT learning and support centers, complements art gallery and museum as cultural investment and is a life-long learning center. (Edwards, 2009)



Library Understanding

The Library is an organized collection of resources made accessible to a defined community for reference or borrowing. It provides physical or digital access to material, and may be a physical building or room, or a virtual space, or both. Great design should be an absolute goal for every part of a library, no matter how grand or humble its scale. “The ancient pairing of books and architecture has recently inspired a renaissance in library design.” (Library Design, 2007) The knowledge era and the need for consistent life learning pose new challenges for architects and designers as a whole. Furthermore, the effect of technology has really influenced the changes need to be made to the layout of libraries. “Dedicated interior design can provide a welcoming safe space inspiring visitors to engage in the activities within. These buildings contribute to the vitality and viability of the communities they serve.” (Library Design, 2007) Libraries have transformed to a more striking almost sculptural façade that has uplifted the image of public libraries. Do to this fact; there has been a significant increase in architectural awards for this type of project. Within the 21st century, public libraries have taken on a greater importance with increasing numbers of people requiring a set aside space within their own homes. These smaller, private libraries are places that allow the home owner to work, read, and organize their busy lives or simply relax. This trend needs to be recognized, libraries of today also need to be a place where people can feel at home. (Library Design, 2007)

Where are public libraries going in the next few years? There are some major points that libraries need to address as they are continued to be planned.

First, libraries need to facilitate a full self-utilization by the public. Through arrangement, design, and organization, the public should find the libraries easy to use.

Second, the library needs to have an efficient staff. These days the library staff needs to do more with less.

Third, the library needs sufficient security for the people, collection, and the facilities. Security for everything in the library ranging from the books to the public is essential.

Fourth, technology, technology, technology. Libraries need to be able to fully access the use of all the new technology.

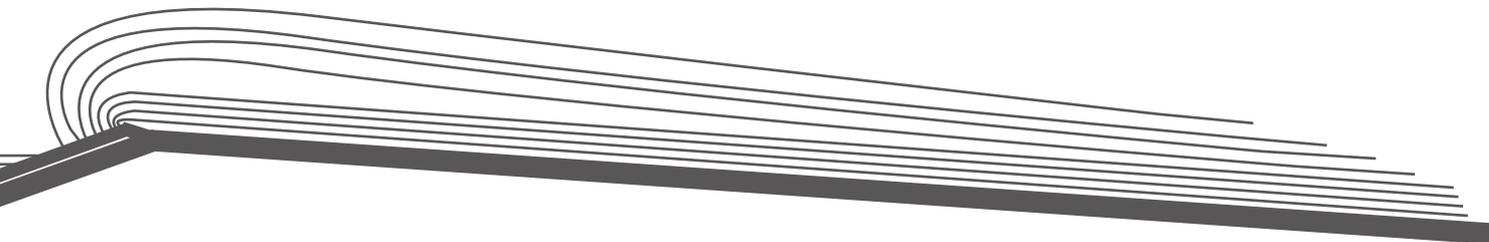
Fifth, the library needs to fully access the lighting and building environments. Libraries need to be able to react quickly to complicated issues, such as proper lighting for every public age to making sure that there are attractive spaces in the building for every group.

Sixth, libraries need to be conscious of more spaces, higher operating costs, and lower budgets. With decreasing dollars to provide, planners need to work harder to accommodate for these issues. (Martin, 1992)

Within the last ten years, technology has evolved greatly allowing us to accomplish faster and more efficiently. Technology has and will continue to influence the design of buildings, especially libraries. Three major technological developments that have an impact on the library are: the computer, media/communication, and the ability to transfer books.

The computer, desktop or laptop, are currently available in smaller sizes than their predecessors. The high powered machine requires very little power and is designed to interface with communications smoothly. Every characteristic has an impact on library design. Within the library, there are rooms set aside for computer occupancy. These rooms do not need to be large and there is no need for any special power arrangements. When computers were first introduced into, they were put on display for everyone to see and use in the main stream. Now, computers can be set aside and do not need to be in the main stream on public display. Setting a room towards the back or a room on the second floor is totally accepted now, with cables connecting every computer to the remote terminal equipment.

Wireless technology is more than anything taking over for cable connections. Although, being unpredictable at times, wireless technology has revolutionized the way information is transferred from machine to machine. Cable connections are still used for higher speeds when needed.



The physical area for which the computers are to be installed does need to be environmentally friendly. The area needs to be dust free, temperature controlled, and in very nice conditions constructed with a raised floor for out-of-sight interconnecting of various wires and components. Although newer computers with microminiaturized circuitry do not radiate much heat, cooling the building is not that big of concern. (Trezza, 1972)

Shipment and the ability to be able to access books from across the country has also changed the way that libraries work. Use of technology, books can be reserved and delivered in efficient time to the selected library. (Martin, 1992)

“The traditional branch and central library concept has diminished, particularly in grown metropolitan areas where branch libraries are assuming the mantle of pseudo-central libraries and are being described as are libraries or regional libraries.” (Library Design, 2007)

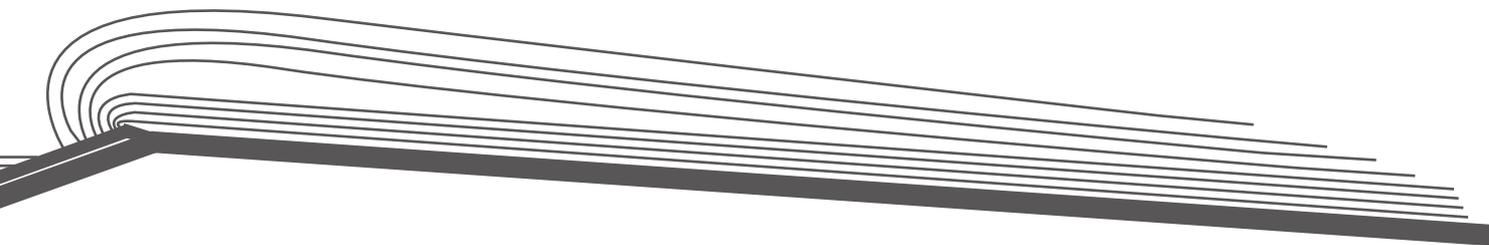
Basic Interior Library Design

“Carefully planned relationships need to be taken within a library to ensure that the facility will function successfully for both the public and the staff. A logically arranged library will be convenient and comfortable for users, will enhance self help and way finding, and will provide productive environment for the staff.” (Brown, 2002)

In most libraries, a circulation desk is located at the main entrance, this allows the users to return books and make other inquiries upon entering the building. This also allows the users to easily check out material on their way out of the library. An information or reference desk may also be made available in sight of the main entrance allowing users to easily figure out the directions to the specific spot needed.

Children should have their own area within the library. This area should be easily assessable for smaller and younger aged children. They should not have to walk through adult spaces to enter the children's area, to walk to the circulation desk, or to use a restroom. If the library has a meeting room used for children's story time and or other activities, the meeting room should be located next to the children's area. Within a children's space, school age young people should not have to walk through the pre-school area to get to their own materials and service.

Visual control is needed within a library to help enhance security, and the need to observe users who need help. For small to medium sized libraries with no security, the layout of stacks and seating can be arranged by the visual control. Stacks can be lined up in one direction to allow staff an easy view down each one. In order to maximize a small staff, computer rooms and reading rooms with glass fronts make it easy for the staff to have a visual control over the room.



Noise control is another defining factor when it comes to library arrangement. At one point in time, libraries were considered to be a place of silence with quiet spaces and/or noise confined spaces. Now, libraries have taken a new attitude towards the noise level in a library. The extensive use of computers has resulted in more conversation around them from user to staff and between several users collaborating around one computer. A library of today should simply separate its noisy areas from its quiet areas. More circulation spaces, browsing areas, audiovisual materials, and even the children's area could be on one end of the library with the quiet rooms and reading rooms at the other end.

In a multilevel library, the relationships within a single floor must be planned. This may include the relationships of the information desk to the reference book collections to the closed stacks. The faculty and staff offices and carrels to designated subject specialties need to be considered for both use and visual control. (Brown, 2002)

“Another important consideration in planning staff areas is sometimes ignored by architects. In small libraries (or any library, for that matter), staff restrooms should not open directly off the staff break or lounge room. Pleasant eating experiences are not enhanced by the sounds and odors from a nearby restroom.

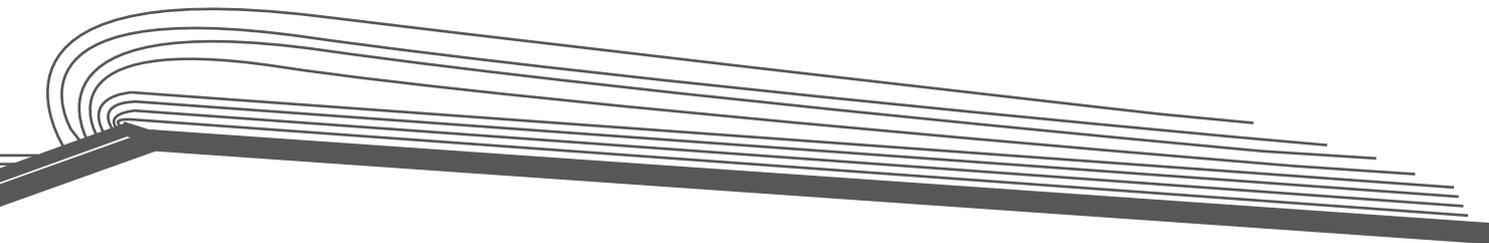
In a large multistory building, it is imperative that the freight elevator be easily accessible from the loading dock and receiving area. If the technical-services department is located on an upper floor, the freight elevator must open onto this floor. Ideally, the freight elevator will open directly into the technical-service areas.

The relationships within particular staff areas should be planned carefully. In a technical-service area, for example, the furniture and shelving layout should reflect the workflow and the movement of new materials through receipt and check-in, to cataloging, and finally to processing. In a small library, it may be necessary to layout the space carefully to distinguish between the location where new, unprocessed materials come into the technical-services area and the location where processed materials are housed when they are ready to go the shelves.” (Brown, 2002)

Future for Libraries

“A significant shift over the past two decades has been the increasing role of libraries in life-long learning, in providing community information, and in supporting the needs of the elderly.” (Edwards, 2009)

Former generations of library buildings between the lending library, reference library and reading room have been replaced by a new set of interacting functions. Now today, the library has spaces for print collections, digital collection, café, community and educational areas. All of these changes have fundamentally altered the nature of the library building.



Today, libraries are full of life and activity, and most of the new users were not visitors to the old generations of libraries. One important challenge into the future is to apply all of the new changes without destroying the familiar building type. The electronic age is here and we need to make the changes necessary to keep the new generation happy. (Edwards, 2009)

Summary

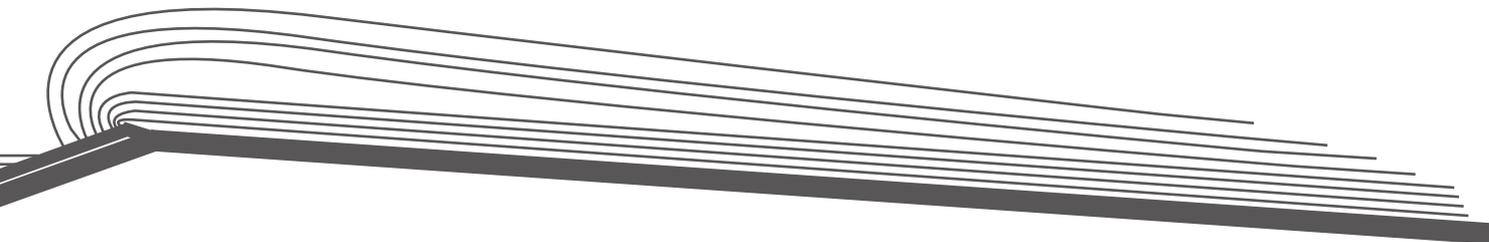
Due to my research on public libraries, I have now come to a very well understanding how a basic library works. To fully innovate something, you have to know what it once was. Mixing the basic library with other multi-use's, I now feel that I can further my design in the right and appropriate way, which of follows, a design that both stimulates a person's mind but also attracts and keeps the users happy. A multi-use library is the "innovation of the library".

Being a multi-use library, I had to take into consideration that there will be other factors that I will need to pay attention to. During the research though, I focused on how the basic library works. Without this main knowledge, I do not feel I would be able to execute an efficient layout for the rest of the uses that will come. I needed to know basic placements of book stacks. I needed to know how circulation works. I needed to know about the visual control. Without knowledge of visual control, I would not have taken into consideration that the library staff does want to help out the user with any questions and concerns. If the stacks were set up in manners that the library staff wouldn't be able to see the user, than the user would not receive any additional help.

The library will also be home to exhibition rooms, art rooms, museum rooms and a restaurant. Do to the research I feel that I will be able to incorporate them well so that they do not overpower or take away from the library. With these extra elements in the library, the public will also be coming for more than just books. This will bring more word of mouth and more activity for the library.

Architecture can really influence and stimulate a person's mind through interactive design and the way a space feels. My research has shown me that library designs with a lot of light are more successful than darker libraries. A lot of light and a lot of open space make a person feel more relaxed and inclined to retain knowledge more efficiently. Incorporating rooms that are reserved to be quiet and having other areas where people can openly chat also helps the user. Interactive design in a library, such as moving features or different lighting, keeps the users mind active.

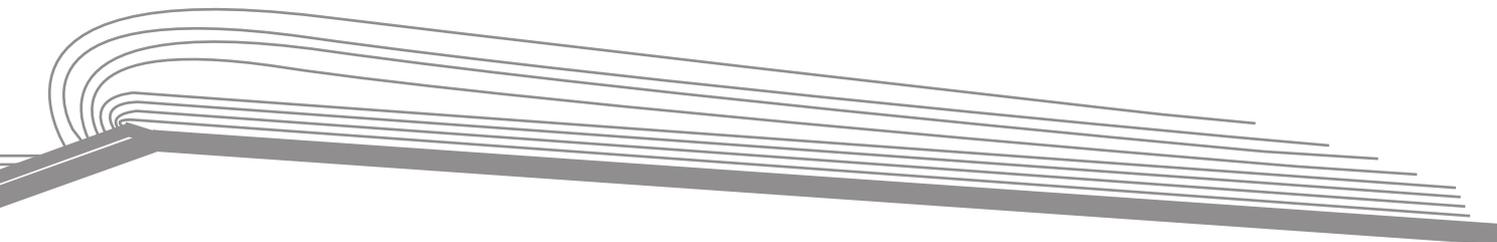
Public libraries are the most permanent buildings in most cities. Their survival reflects on their importance and their ability to continually adapt to changing priorities. Allowing interactive design and a successful layout will allow for all the changing priorities. Due to most libraries not being able to adapt to change has put them on the decline for public use. I will make sure in my design that I incorporate all necessary needs to allow my public library to change with the new age of technology.



60



Case Studies



Project: Bishan Public Library

Location: Bishan Place, Singapore

Completed: 2006

Size: 15,072.7 sqft

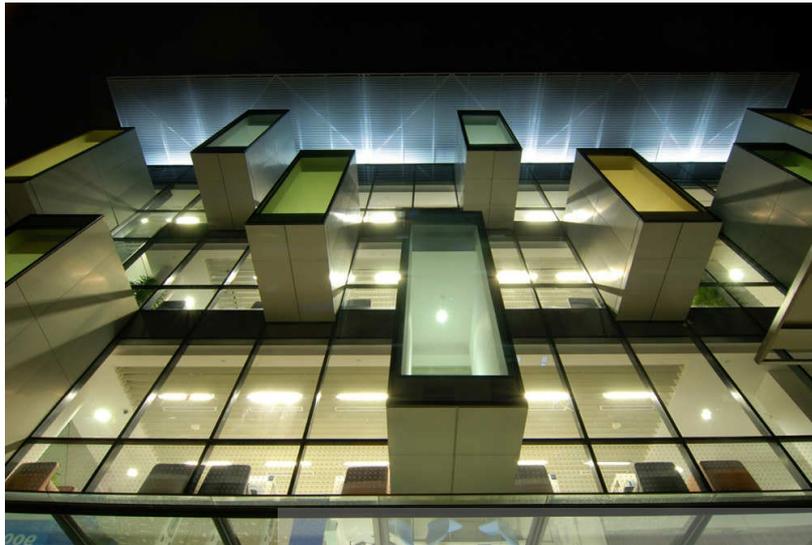


Figure 2.3

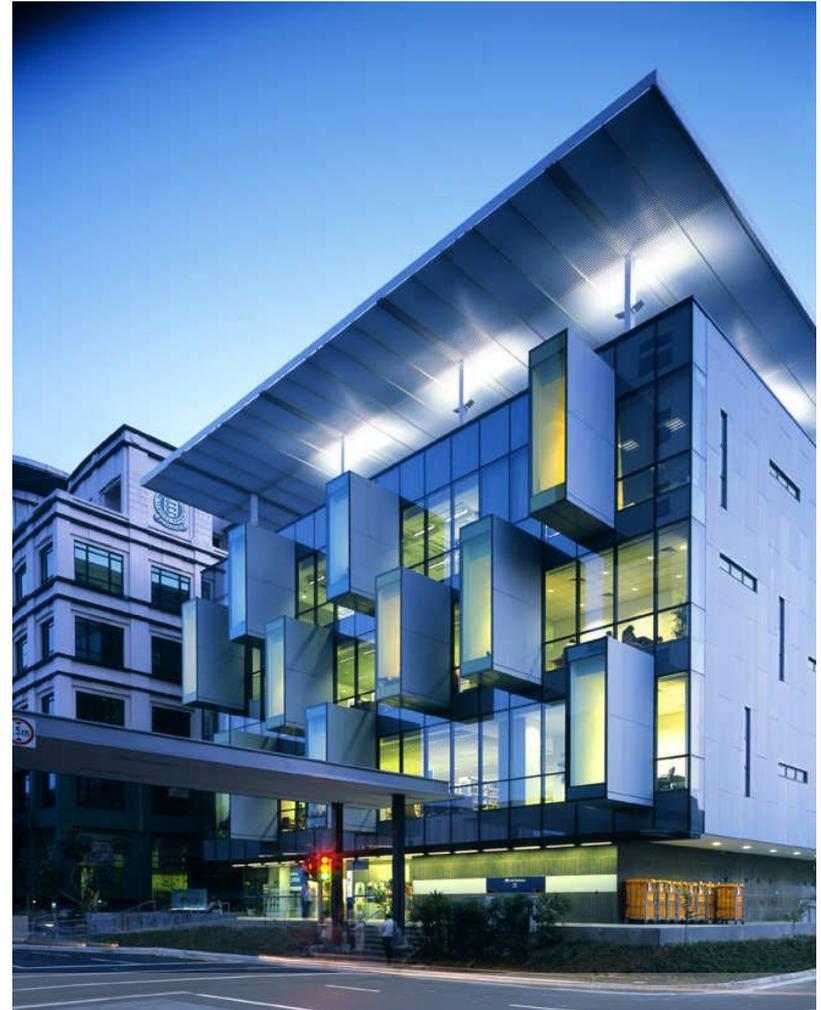


Figure 2.4

The Bishan Public Library was designed by LOOK Architects. This library was designed off the metaphor of a tree house. This design was to create an environment for learning via journey of discovery and play. The Library uses skylights, colored glass and trellises to transform incoming daylight into a myriad of shades and colors. This creates an intriguing quality of light within the library that resembles light being filtered through the foliage of trees. The Bishan Public Library uses “Pods” cantilevered off the main building façade extrudes distinctive charisma on the exterior. With these pods, suspended alcoves are at an intimate scale from the building interior.

This case study of the Bishan Public Library was important to my research because this library is using many different forms of lighting techniques to stimulate the minds of the users/ guests. Learning how the use of the solar control for this library was very essential to my thesis process. The Bishan Public Library also has an internal atrium that introduces natural daylight deep into the main circulation zone.

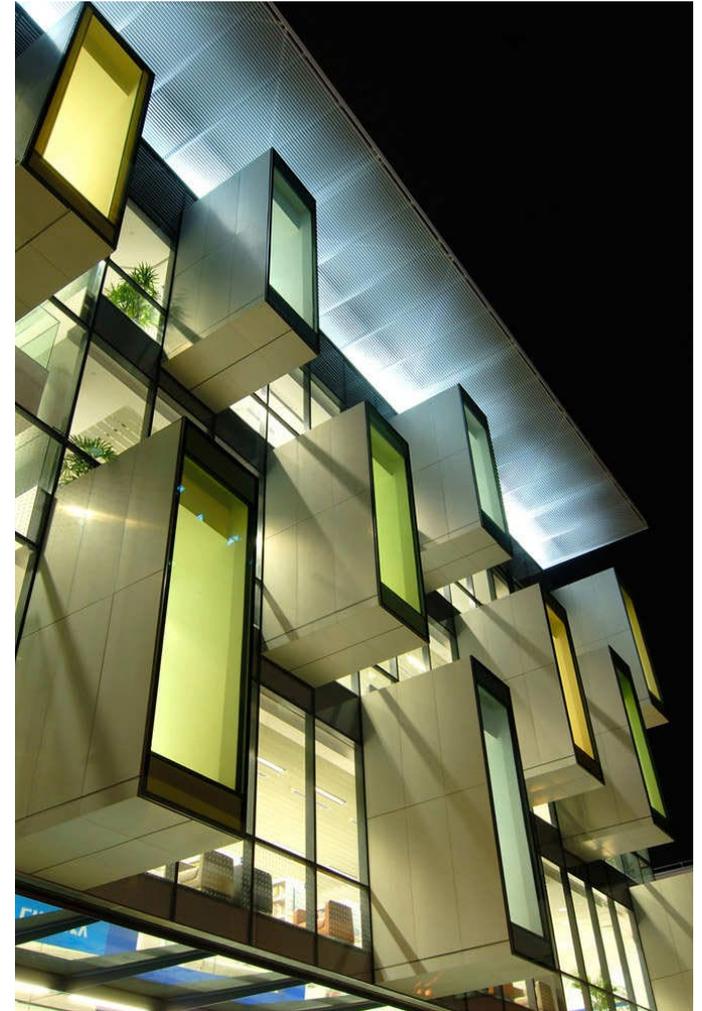
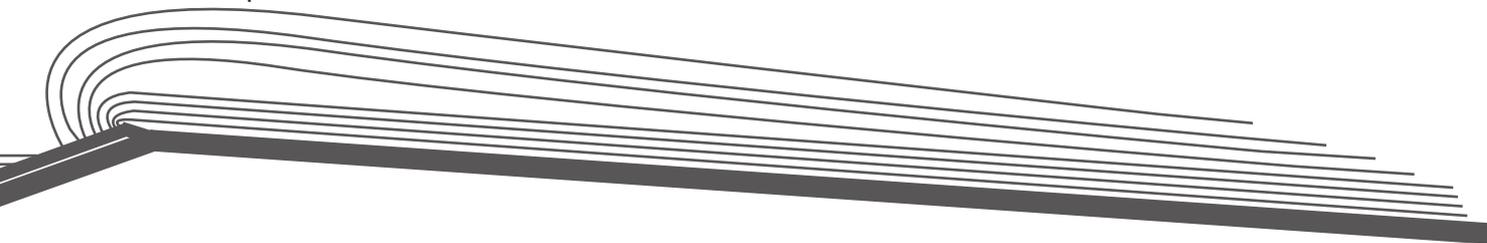
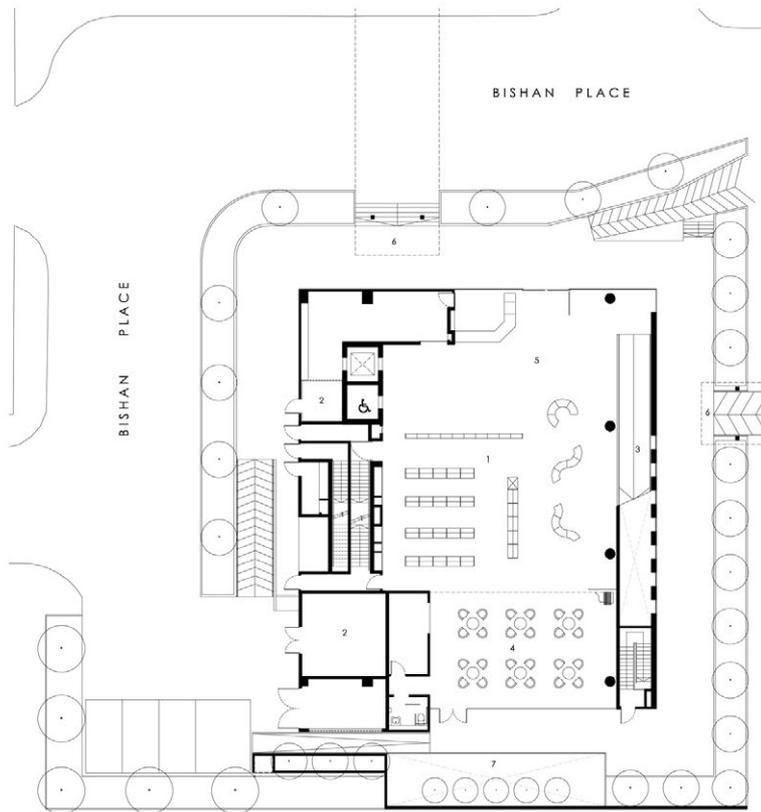


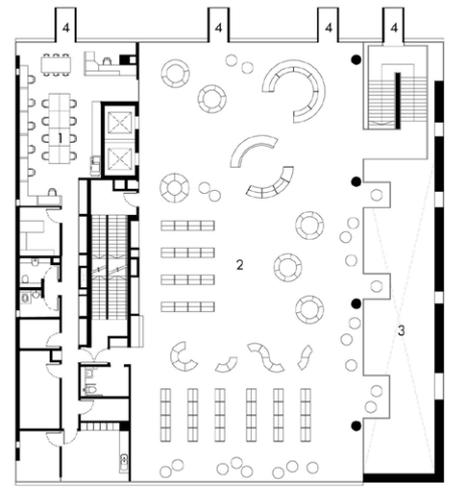
Figure 2.5





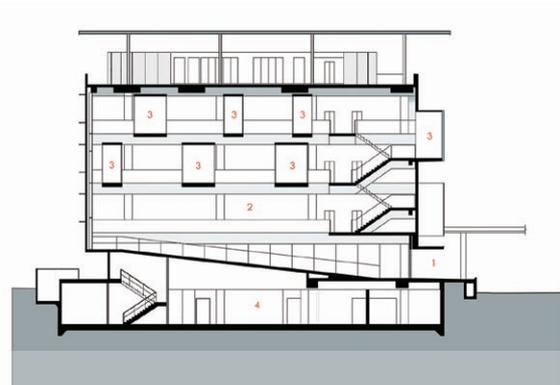
FIRST STOREY PLAN
0 5 10M

- 1. LIBRARY STACK
- 2. BACK OF HOUSE
- 3. RAMP
- 4. CAVE
- 5. ENTRANCE / FOYER
- 6. COVERED WALKWAY
- 7. VOID



FOURTH STOREY PLAN
0 5 10M

- 1. Back Of the House
- 2. Library Stack
- 3. Atrium
- 4. Reading Pod



- 1. Public Walkway
- 2. Atrium
- 3. Reading Pods
- 4. Basement Library

Figure 2.6

Responding to a highly constricted urban site, the Bishan Public Library had to answer to a design that was very minimal on the impact of its surroundings. The structure comprising of four typical floor slabs over a basement are linked by a common lift and staircase core. Internal columns were kept to a minimum due to the use of post-tensioned floor slabs. This in return maximized the floor area and increased the flexibility of the collection storage.

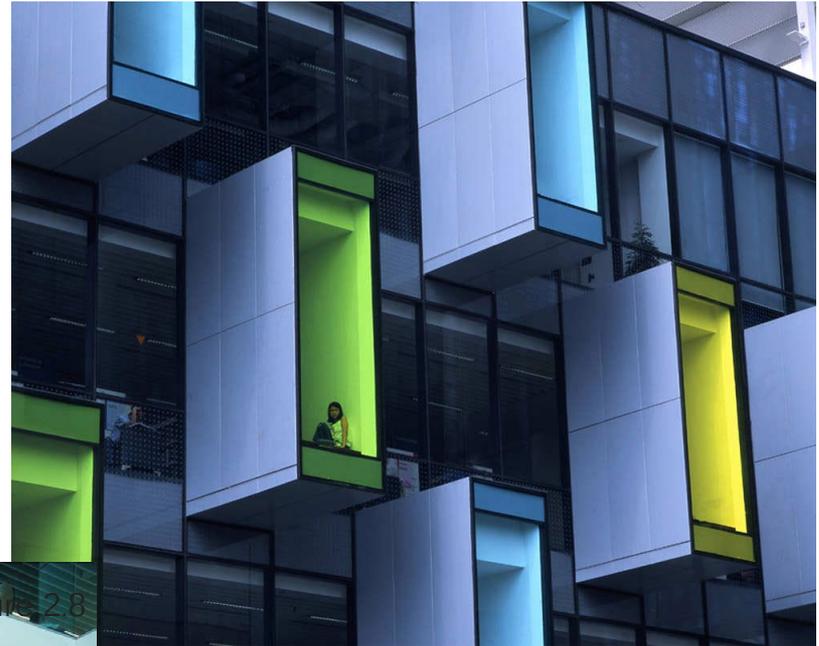


Figure 2.9

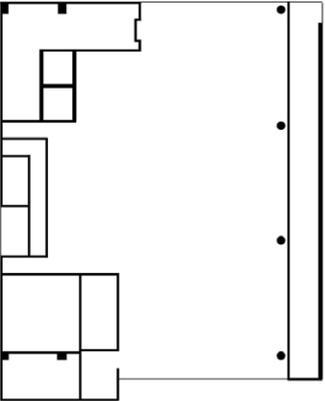


Figure 2.7

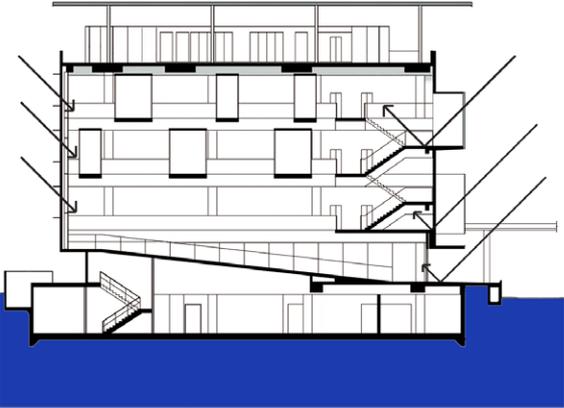


Figure 2.8

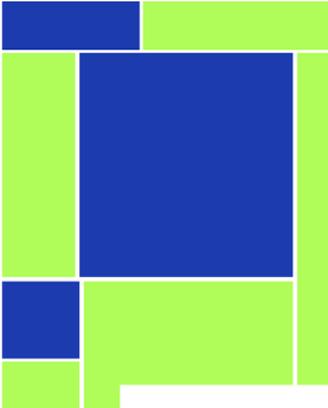
Clark and Pause's 11 Aspects of Design Analysis Figure 3.1



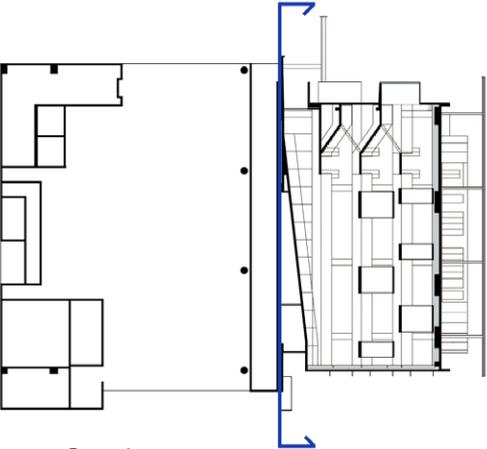
Structure



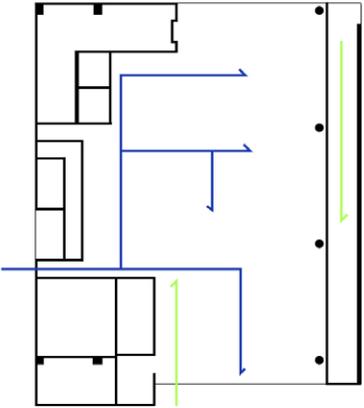
Natural Light



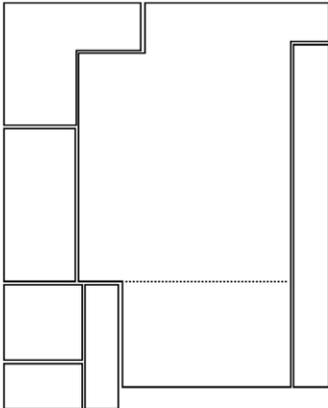
Massing



Plan to Section

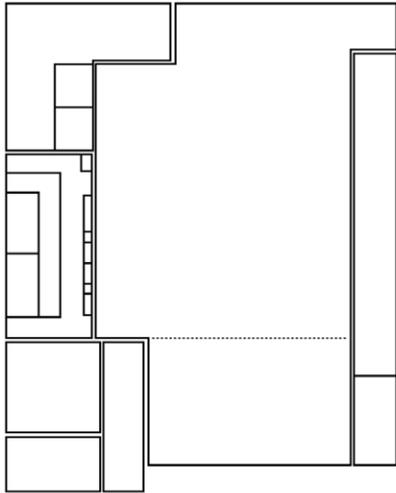


Circulation to Space

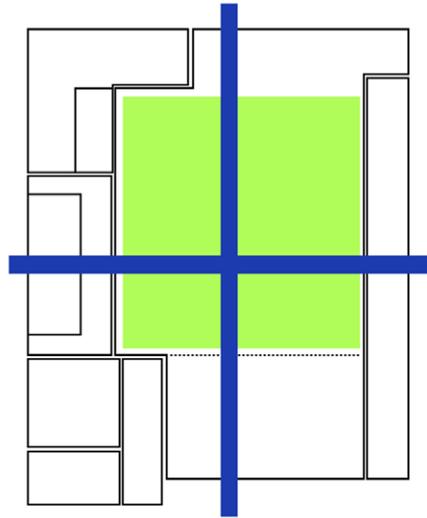


Unit to Whole

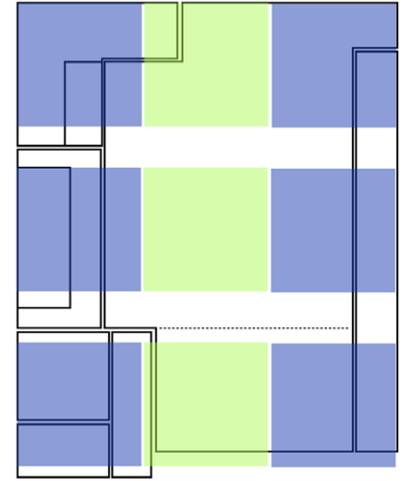




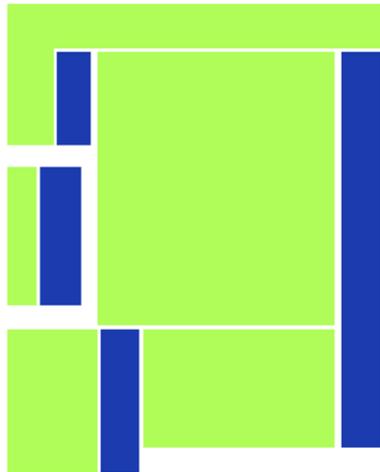
Repetitive to Unique



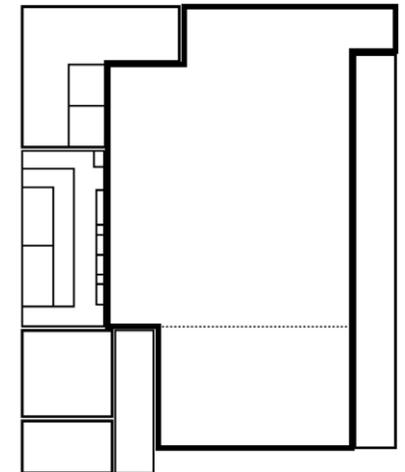
Symmetry and Balance



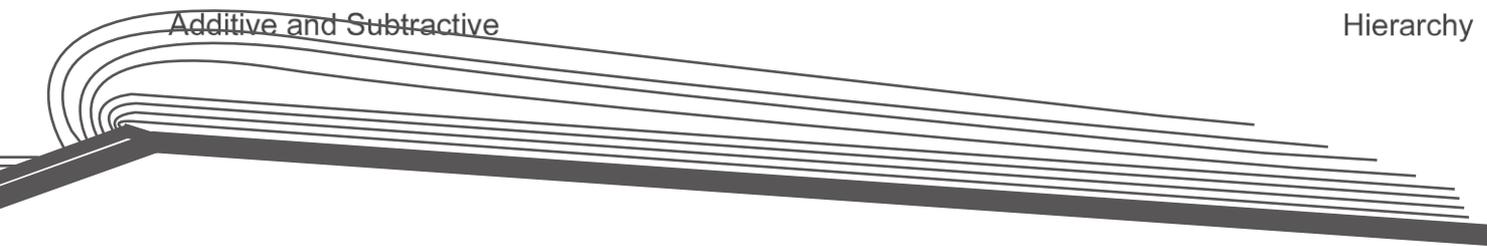
Geometry



Additive and Subtractive



Hierarchy



Project: Dalian Library

Location: Dalian, China

Completed: N/A

Size: 488,681 sqft

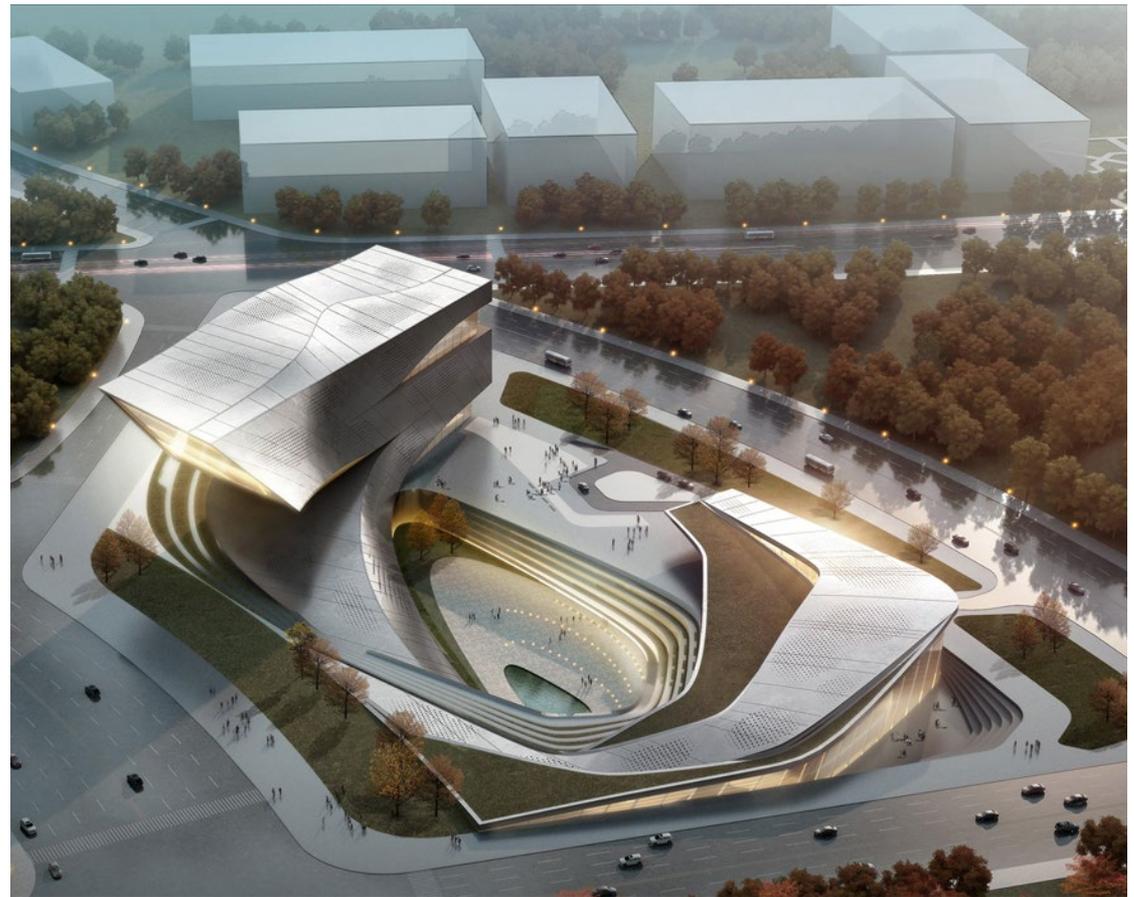


Figure 3.2



Figure 3.3



Figure 3.4

The Dalian Library was designed by 10 Design with a very engaging and dynamic proposal. 10 Design wanted to represent an attention for both an urban and internal connectivity. The Dalian Library was intended to be very transformative allowing guests to be pulled into a unique landscaped environment. The library weaves into the ground creating many opportunities for courtyards and topographic undulations. From rooting itself into the ground, the Library then sweeps up into the air to form a bold urban landmark that becomes the community center for the neighborhood.



Figure 3.5

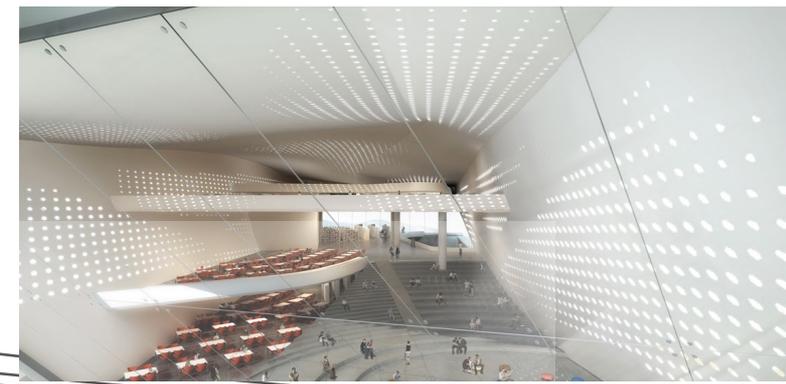


Figure 3.6

Dalian Library's shifting masses create spaces ranging from the vast dynamic and expansive views offered from the tower volume to the intimate spaces for reflection in the courtyards. The tower volume has a series of internal voids and terraced spaces. These spaces are to further enhance the spatial conditions. Within the library, there are a series of retail functions that will further help draw a larger audience to the library. A large media center is offered for after hours and can function independently.

The mass is shaped by the views into the site and outwards to the surrounding sea and mountains. The use of hills and landscaping allow a natural amphitheater to the library. This library also features a rooftop café providing panoramic views of the mountains and sea.

This library was an important case study to my research because this library deals with a lot of the major elements that I want to incorporate into my library. From the rooftop café to the outdoor courtyard, this library has quite a unique look and feel that will allow guests to really want to visit. Studying the different spatial views was also a large reason for using this library as a case study. This library incorporates very large areas where guests can roam and use freely all the way to very intimate locations that could be used as quiet studying areas. The Dalian Library also has a very unique look which allows it to become a place of interest. The form draws in everyone from tourists to locals.





Figure 3.8

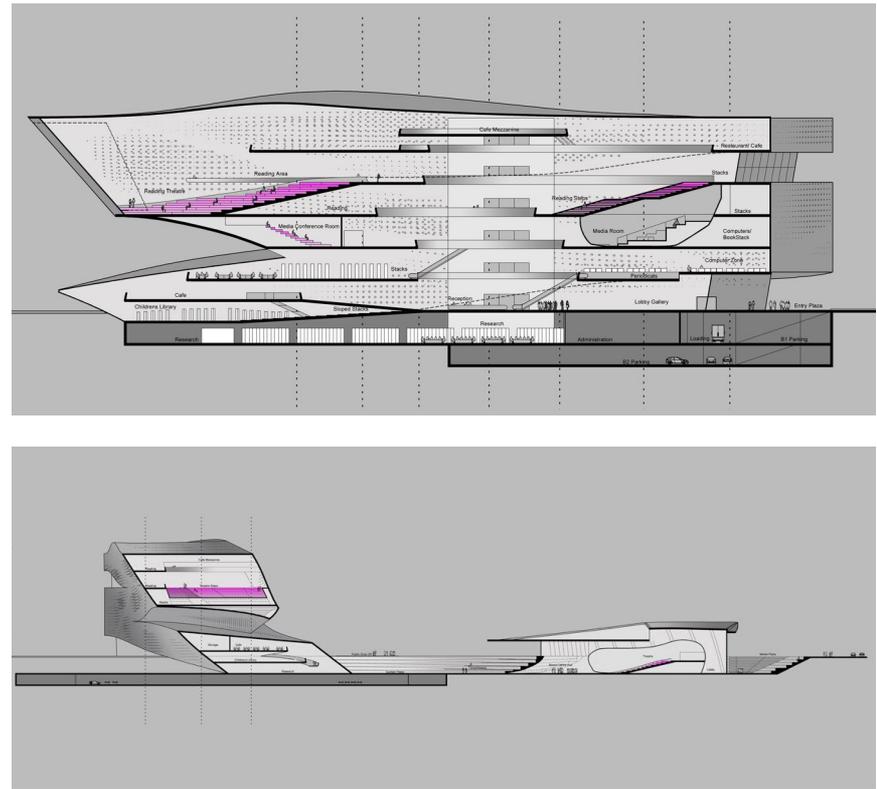
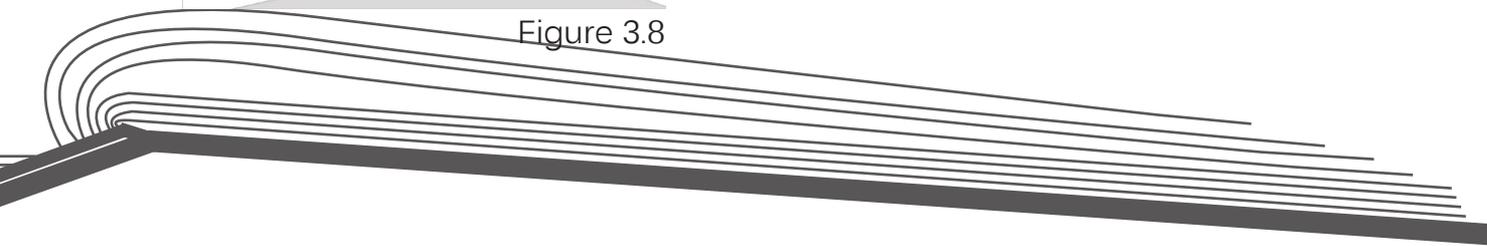
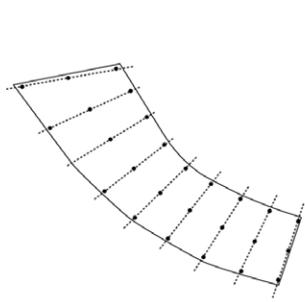


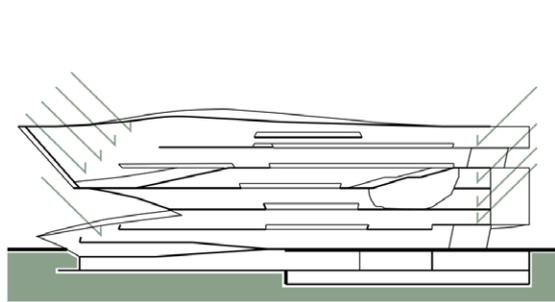
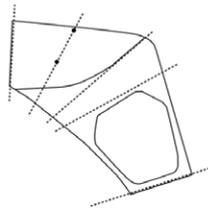
Figure 3.9



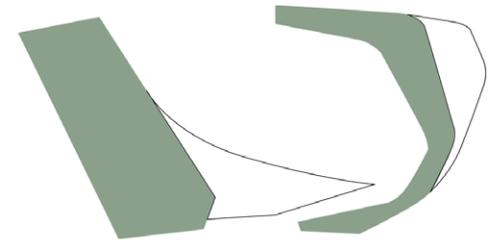
Clark and Pause's 11 Aspects of Design Analysis Figure 4.1



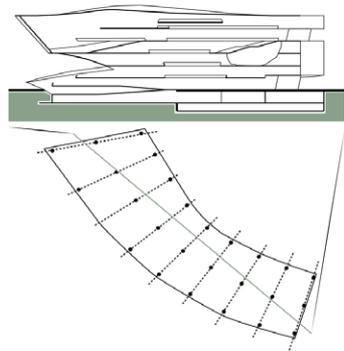
Structure



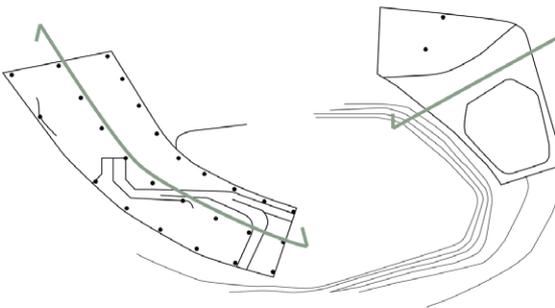
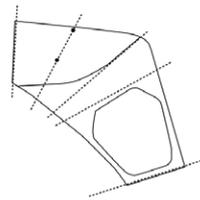
Natural Light



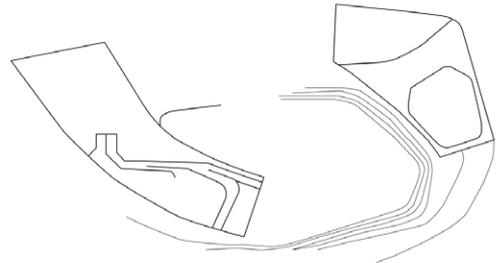
Massing



Plan to Section

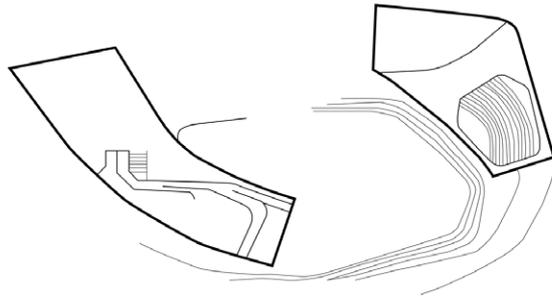


Circulation to Space

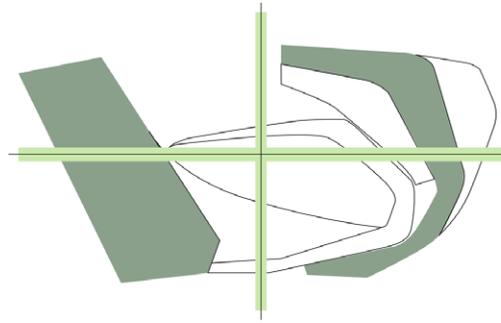


Unit to Whole

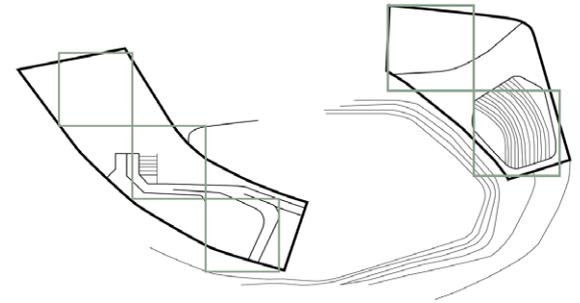




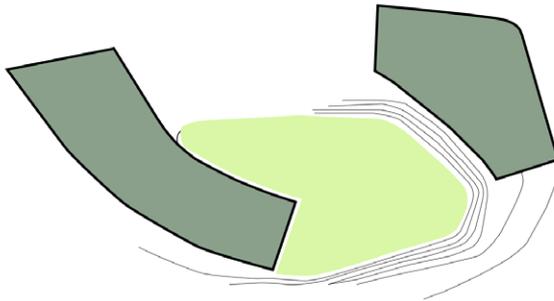
Repetitive to Unique



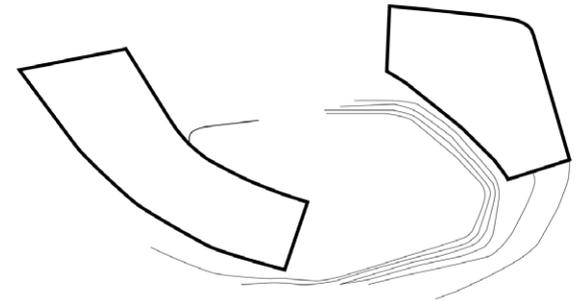
Symmetry and Balance



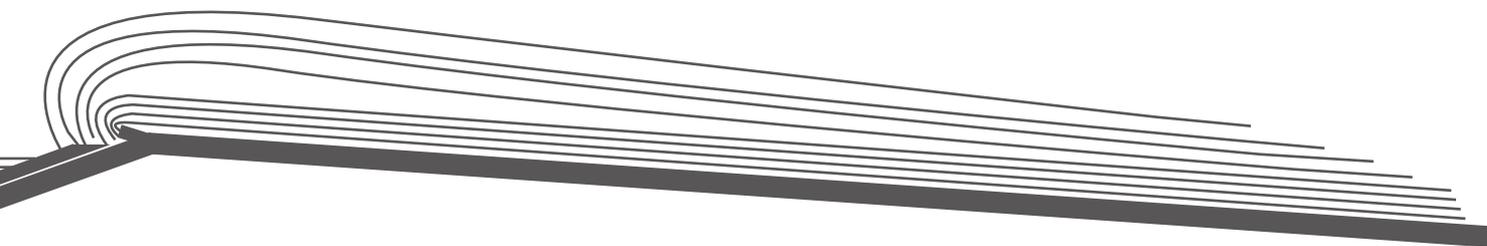
Geometry



Additive and Subtractive



Hierarchy



Project: Ofunato Civic Center and Library

Location: Sakari-cho, Ofunato City, Iwate,
Japan

Completed: 2008

Size: 5,255.82 sqm

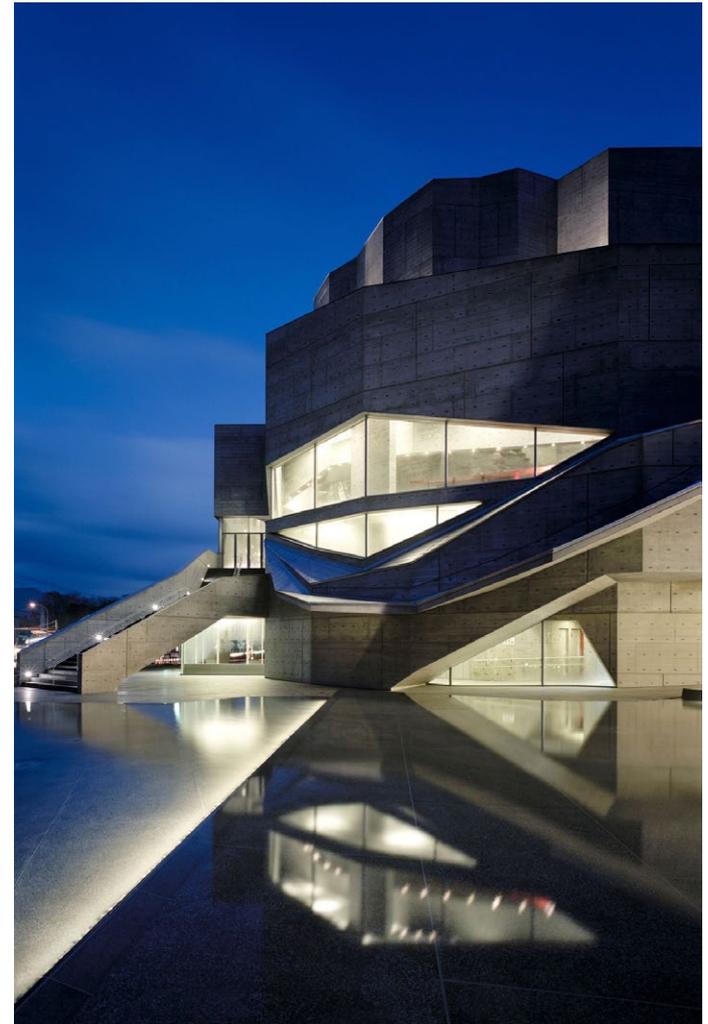


Figure 4.2





Figure 4.3



Figure 4.4

The Ofunato Civic Center and Library was designed by Chiaki Arai, Ryoichi Yoshizaki and Masatoshi Naito. This civic center and library is located in Ofunato, Japan. It is a cultural building complex which consists of a main hall that holds 1100 seats, a library, an atelier, a tea room, multi-purpose spaces and a studio. The Ofunato Civic Center and Library only added a library as a request from its locals.

The form of the civic center and library was discussed in order to design a new iconic community space. Architects were requested to not adhere to any particular forms or ideas, but to form the space from something ambiguous.

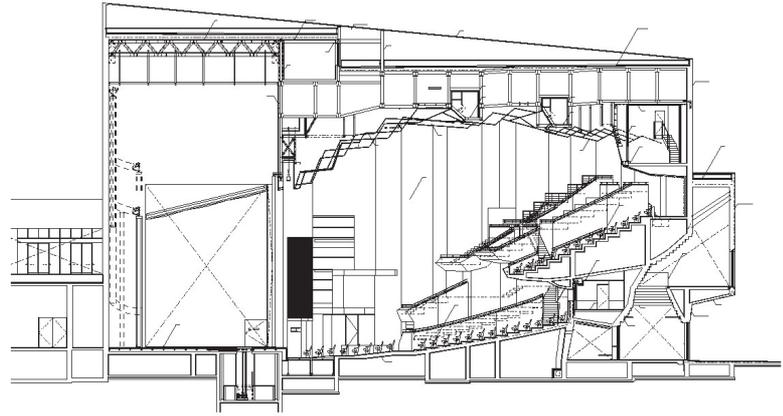
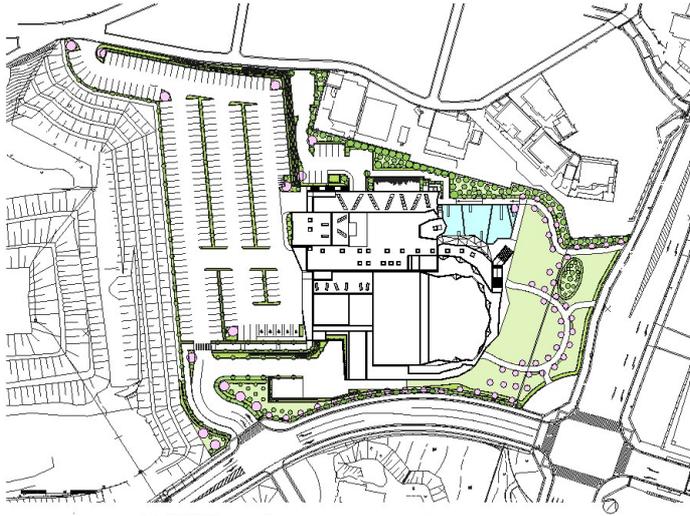
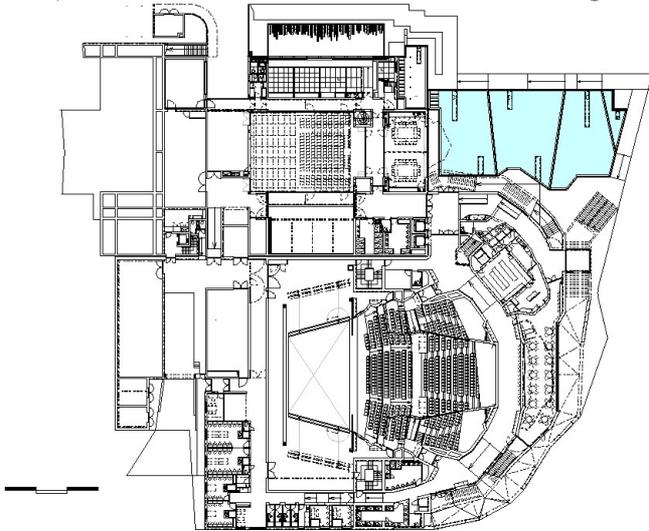


Figure 4.5



The Ofunato Civic Center and Library was a needed case study to my research. This center was not intended to hold a library but was requested to add one. I wanted to research this center to see how they integrated the library into the multi-use complex. My library will be a multi-use complex, but unlike the Ofunato Center, my library will focus on being a library with the surrounding multi-use activities within it.

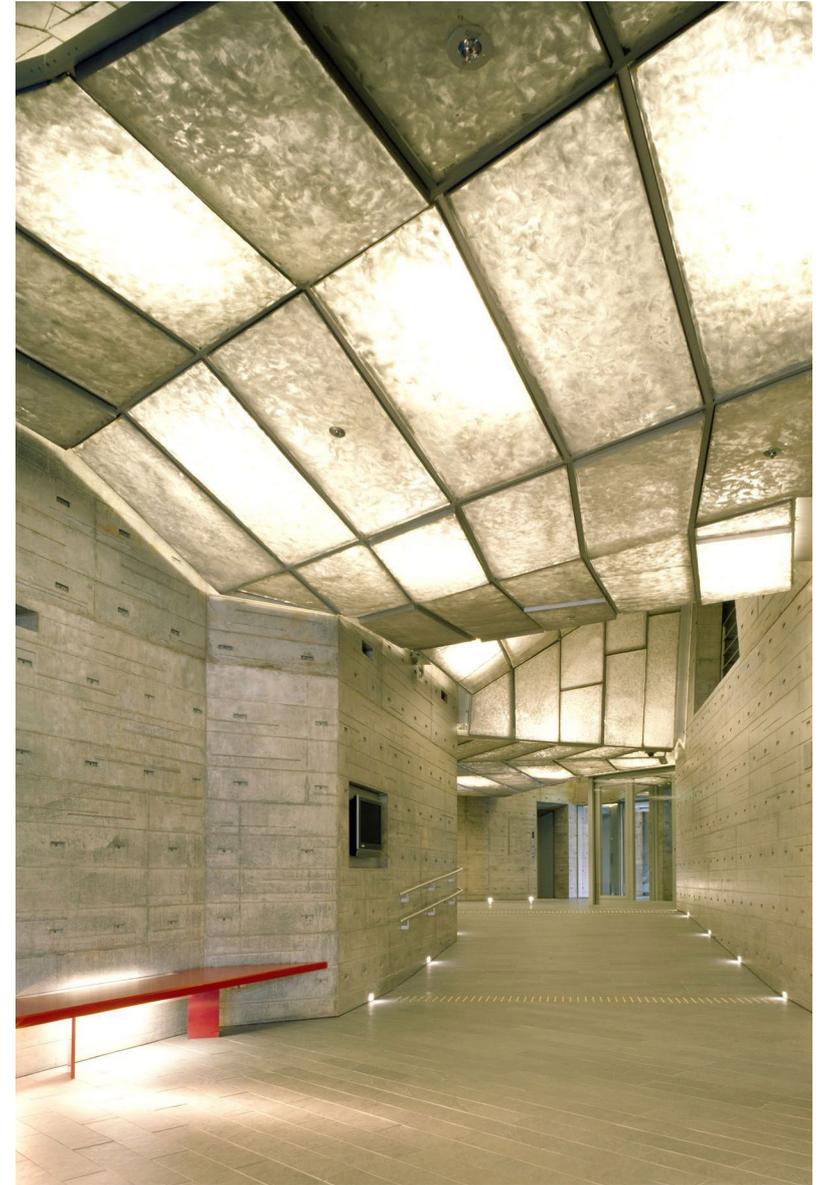
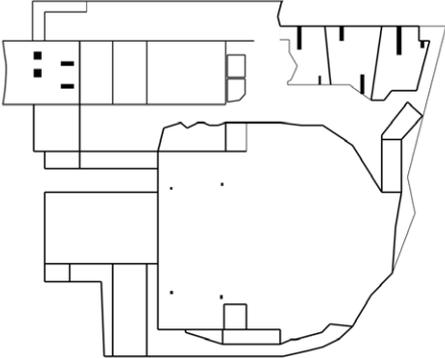
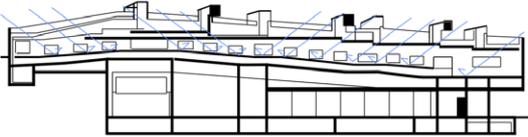


Figure 4.6

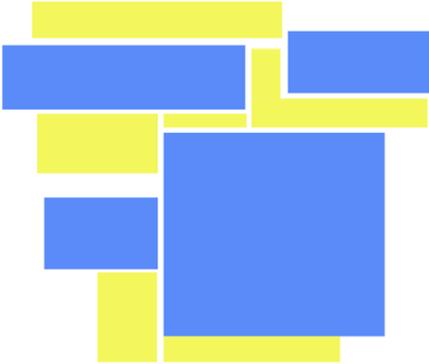
Clark and Pause's 11 Aspects of Design Analysis Figure 4.7



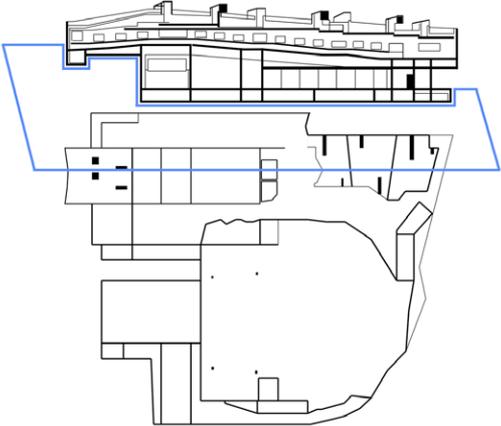
Structure



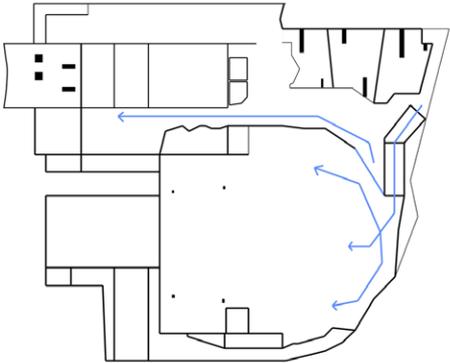
Natural Light



Massing



Plan to Section

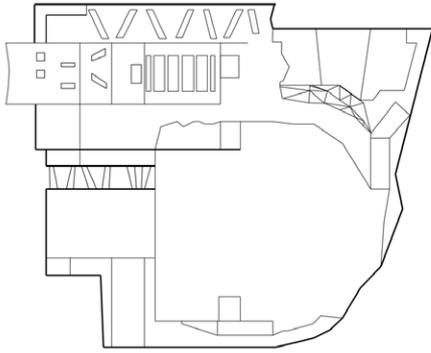


Circulation to Space

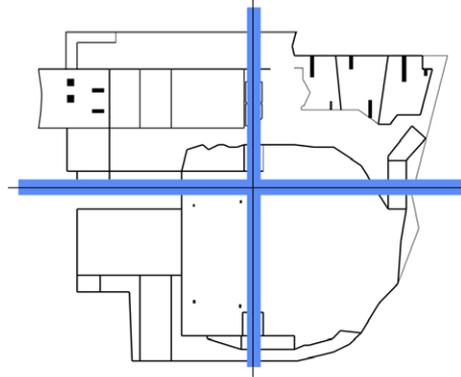


Unit to Whole

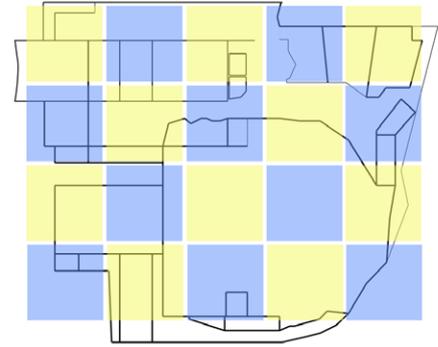




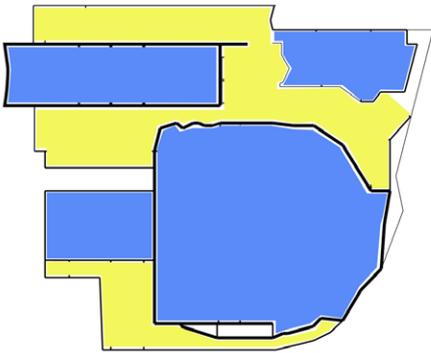
Repetitive to Unique



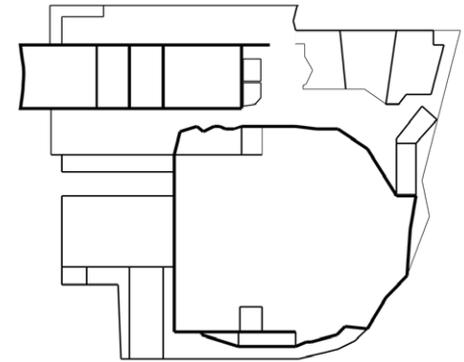
Symmetry and Balance



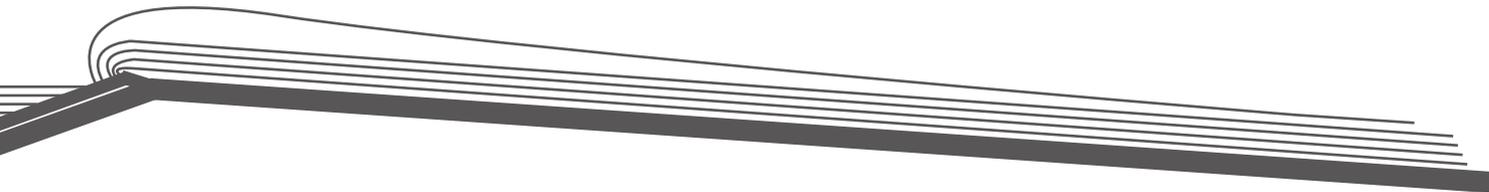
Geometry



Additive and Subtractive



Hierarchy



Summary of Case Studies

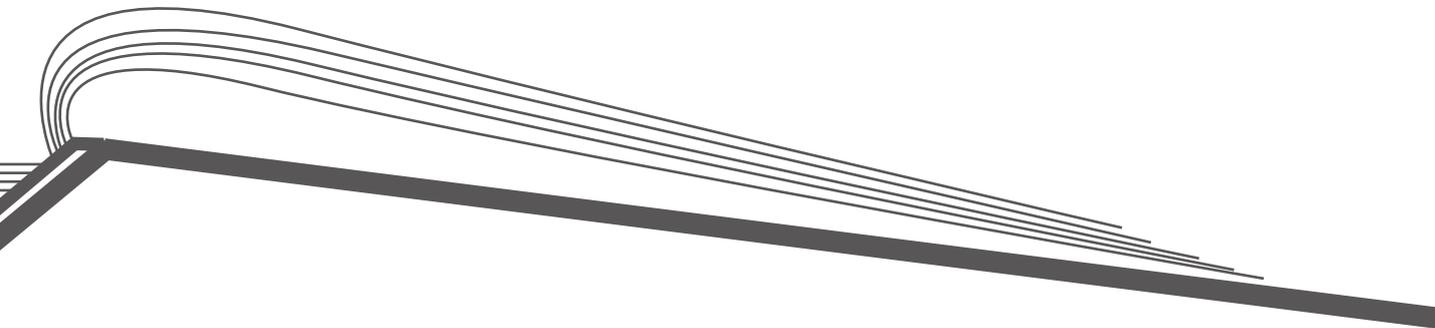
My typological research includes the Bishan Public Library designed by LOOK Architects in Bishan Place, Singapore, Dalian Library designed by 10 Design in Dalian, China, and Ofunato Civic Center and Library designed by Chiaki Arai Urban and Architecture Design in Ofunato City, Japan. Each one of these case studies has its own beneficial contribution. Doing an intensive analysis of each building, I can beneficially contribute to my own design and site analysis.

Each case study has common characteristics. Each case does in some way present a multi-use library, from an entire auditorium to smaller courtyards. In my design I will be designing for a multi-use library and understanding the layouts of already successful designs will only allow me to successfully layout my library.

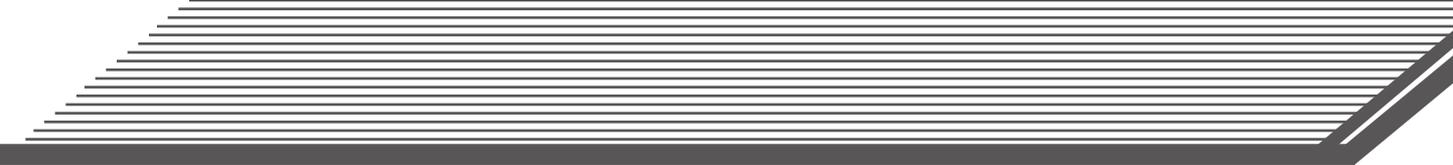


The Dalian Library case study has the most multi-use layout of all three. I really appreciated the integration of landscaping that this library also used.

Each case study also showed many uncommon traits. The Ofunato Civic Center and Library was barely a library at all, but was essential to my research. This civic center added a library due to public persuasion, and the library has been very successful. With the understanding how this library works alongside a giant auditorium will allow me to further my design.



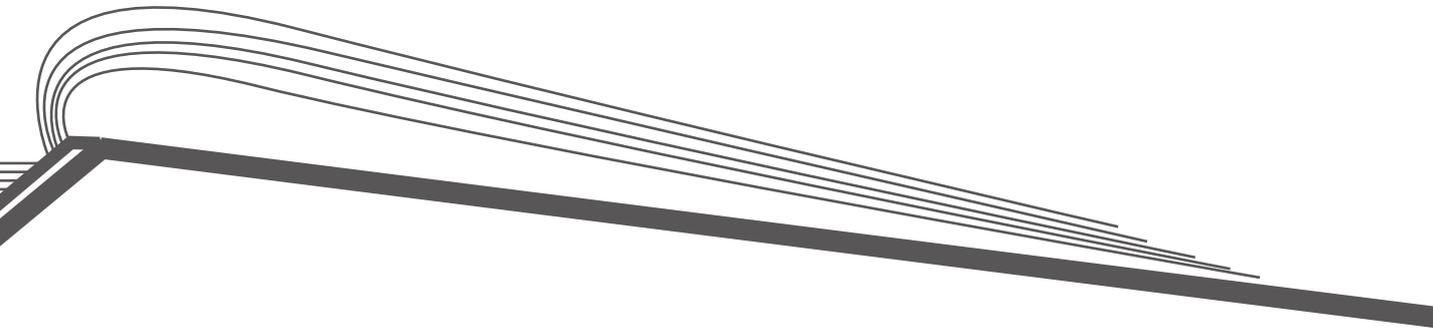
Historical Context of the Thesis



History of the Library

In 4000 B.C. a devastating fire destroyed the library at Alexandria and mankind lost over half of all its recorded knowledge. It was not until 1200 A.D. that monastic libraries throughout Europe began to take measures in reassembling the lost knowledge 3000 years earlier. At this time resources for reproducing text was limited, it wasn't until a man named Johann Gutenberg invented the movable press that the spread of printed material began. (Edwards, 2009)

The earliest libraries had two main traditions that they would stick to, the emphasis on the importance of the book and the space which it was contained and the emphasis on the reader. The emphasis on the reader is how the "carrel" came to be. Carrels first started out as small alcoves that would be built within the space. These spaces were often arranged around the perimeter of the space and next to windows. This pattern would continue throughout the Middle Ages due to its success.

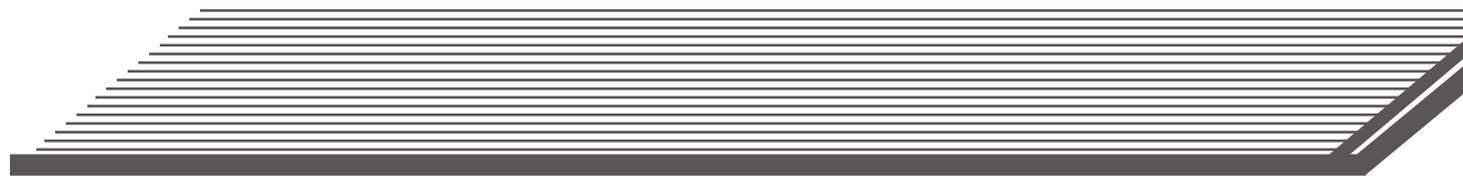


As the book collections would continue to grow, the spaces along the walls would also have to grow. Libraries continued to accommodate the collection by making the spaces higher and higher, leading to the use of ladders to reach the books. This design eventually gave birth to the Great Room. In 1816, an Italian man named Leopoldo della Santa proposed a new solution to the growing Great Rooms. He called for a separation of spaces, such as stacks, reading rooms and offices. As this emphasis continued to grow, the reading room became more important than the book.

Again, with the vast collections of books, libraries had the problem were to store them. This eventually acquired further division of areas in the library. It was now at this time in the second half of the 19th century that there became a distinct line between the public library and the institutional library. Public libraries became the means to educate and improve the morals of the underprivileged.



Figure 4.8

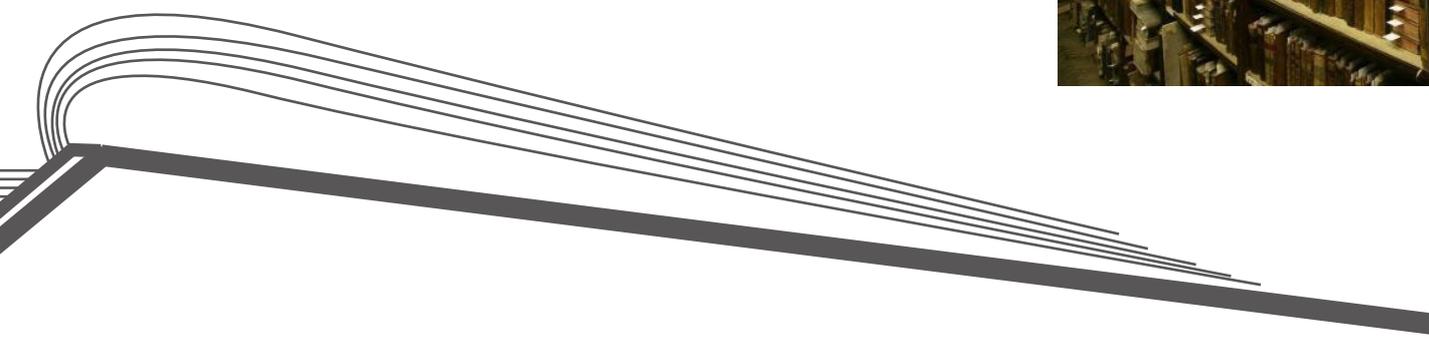


At the turn of the century, a man named Andrew Carnegie continued to make generous donations to the public library which in return made the library what it is today. Now, the library could act as a community center for the towns they served. Because many of these libraries became very specialized in a certain field, the idea of inter-library loan came about. This would serve people and allow them to have access to resources located throughout the country.

Today, libraries have become more of a place for storage of knowledge both printed and electronically. With the digital era becoming more and more every day, people wonder where the traditional public library will fit in. Libraries have always been a place to learn and gain knowledge. I feel that the library will continue to serve as this function whether or not you view the print on screen or in a book.



Figure 4.9



History of Kansas City

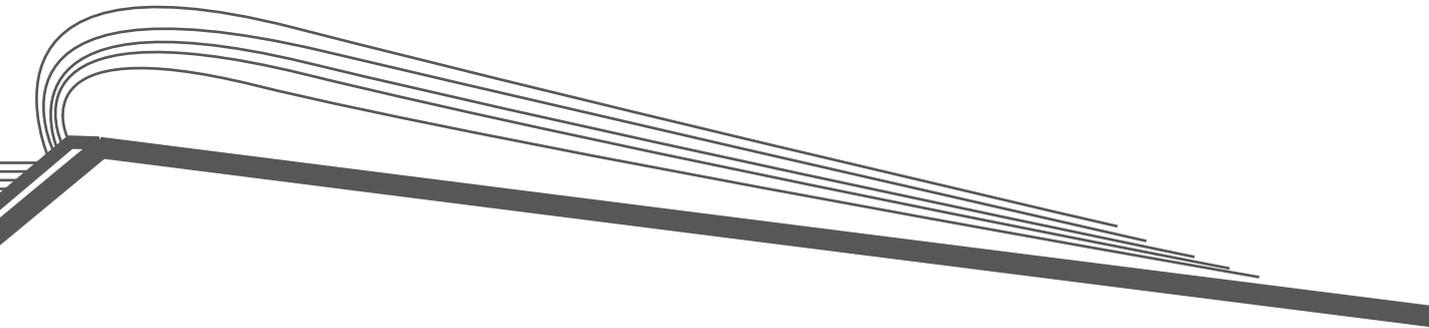
Kansas City can be traced back to the year 1821; this was the year that the Union admitted Missouri. Many young entrepreneurs, such as Francios Chouteau and John Calvin McCoy, set up their land for selling and trading. “Francios Chouteau, a Frenchman, came up the Missouri River and established a trading post on the waterway about three miles below the great bend in the river, now the Northeast Industrial District.” In 1826, the land was flooded out and Francios Chouteau rebuilt his property on higher ground at the foot of which is currently the Troost Avenue. “John Calvin McCoy likewise was interested in selling and trading, but he opened his store inland on the Santa Fe Trail, about four miles south of Chouteau’s trading post. McCoy filled a plat on his land in 1833 and because he considered it a portal to the west, named it Westport.” (Kansas City History, 2013)

Kansas City was not the official name given when establishing this city. The new owners of this land “Kansas City” held continuous town meetings to find a name for their new township. Some of the rejected names include: Rabbitville, Port Fonda and Possum Trot. Overall, the township was given the name the Town of Kansas. This name came from the Kansa Indians who inhabited the area. Kansas City retained its name the “Town of Kansas” until February 22, 1853, when the city was incorporated by the state which then became officially known as Kansas City. (Kansas City History, 2013)

Kansas City is not scarce of great architectural landmarks. Some of the most famous destination points in Kansas City are: Power and Light District, Kansas City Museum, Nelson-Atkins Museum of Art, Sprint Center and the Country Club Plaza.

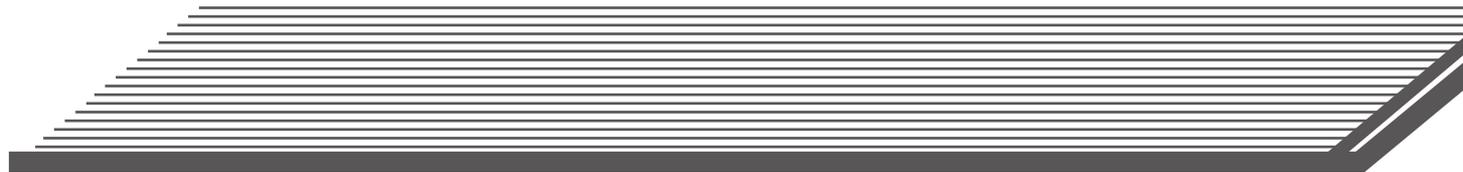
The Power and Light District, located in downtown Kansas City, is a very famous shopping and entertainment district. Comprised of nine blocks, this district is on the south side of the downtown loop and is located between Baltimore Avenue and Grand Boulevard to the east. The Power and Light District is a “mixed-use” area that comes close to eight hundred and fifty million dollars, making it one of the largest indoor outdoor projects in the Midwest. One of the most popular features of The Power and Light District is the open container policy that allows alcoholic beverages to be possessed and consumed on the streets within this area.

The Kansas City Museum, also known as the R.A. Long House, is a three acre plot which consists of Corinthian Hall and its surrounding outbuildings. The Museum has been renovated to hold local area history, a fifty seat planetarium, natural sciences, and a 1910-style soda fountain that serves the visitors ice cream.



The Nelson-Atkins Museum of Art houses an amazing collection of more than 33,500 objects making it internationally recognized. The collection of ancient times to modern day work allows this museum to be one of the best in the country. Visitors get the opportunity to see through the eyes of painters, sculptors, craftsmen and artists. The Nelson-Atkins Museum of Art inhabits an expansion that uses architecture and landscaping to create an experiential architecture that opens for visitors to perceive as they move through the space. The new addition, named the Bloch Building, uses the existing sculpture garden to transform the entire Museum site into the center of the visitor's experience. The addition extends along the eastern edge and is distinguished by five glass lenses.

The Sprint Center, being very new to the area, was opened on October 10, 2007. To celebrate its opening, Elton John was the first performer to be held at the arena. The Sprint Center is a large arena in downtown Kansas City. It is a multi-use space holding performers, basketball games, football games and many more local events. The arena's naming rights partner is Sprint, the telecommunications company. They also inhabit Kansas City with their headquarters being located in Overland Park.



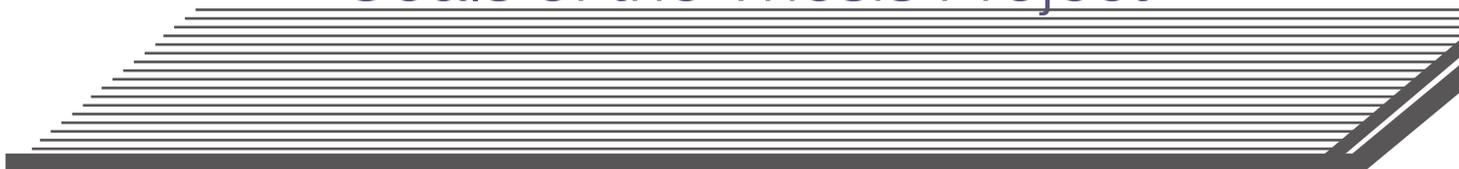
The Country Club Plaza, also called The Plaza, is a very upscale American shopping district in Kansas City. With high class residential neighborhoods surrounding the Plaza, it is highly used. This shopping center was the very first, in the world, to be able to accommodate shoppers arriving by automobile. The enormous fifty five acre site is around four miles of south downtown Kansas City.



Figure 5.1

1. I want to clearly produce a meaningful theoretical premise and unifying idea that will not only guide but allow me to efficiently move my thesis through every step of the process.
2. Efficiently work and stay on a well-timed schedule to allow my design to be finished with my satisfaction.
3. Through all of my research, I want to be able to fully understand and become knowledgeable in every aspect of my theoretical premise and unifying idea.
4. Establish a design solution that innovates the current traditional library to a new “re-designed” modern library.

Goals of the Thesis Project



5. Provide a professional compilation of all my research, documentation, and design progress into the thesis, that is to the highest quality possible.

6. Provide a professional and masterful graphic presentation. The thesis should not need me to speak for it but for it to speak for itself. This will only be achieved by laying out all drawings, renderings, details, diagrams and boards in a successful manner.

7. Develop a design that highlights many aspects of architecture. Showing the focus on how different construction methods, electrical systems, mechanical systems, etc. can be incorporated.

8. Develop a design that is connected with the site, creates a positive experience, sparks interest and redevelops traditional designs.

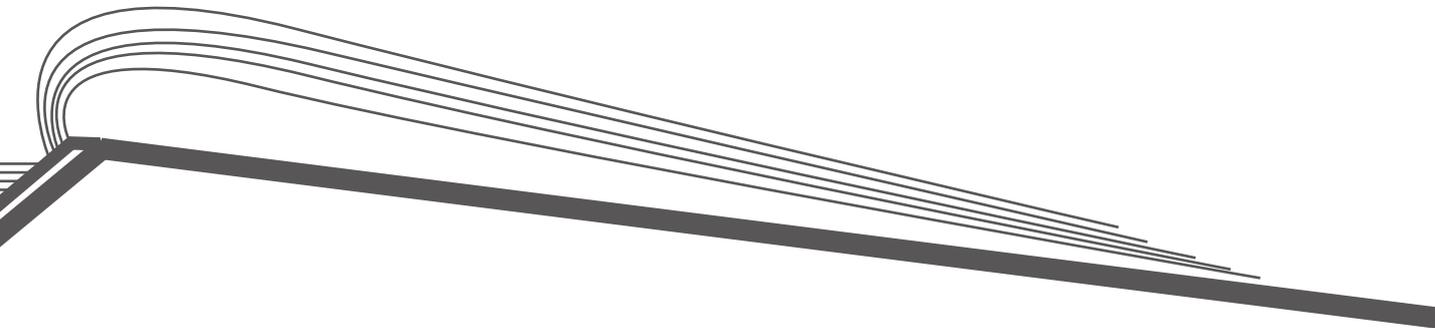




Figure 5.2



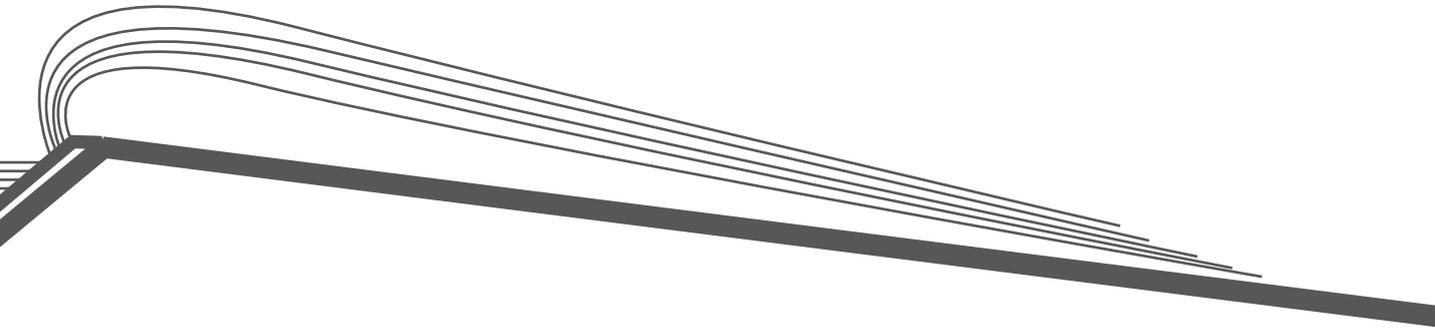
Figure 5.3

Site Analysis

The Narrative

Kansas City, Missouri, was not the original location for my thesis site. My original thesis site was Chicago, Illinois. I had chose Chicago because it is a well developed city with a lot to offer to my thesis design. Chicago already homes many architectural wonders and is not new to any out of the ordinary ideas. I have visited Chicago many times and I very much love the city, but after visiting Kansas City, Missouri, I just knew that this is where my site needed to be.

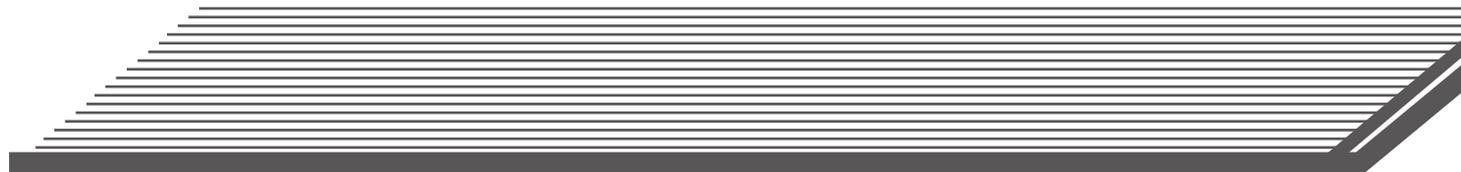
Kansas City is on the fast track growing more and more every year. This city has gone through intense measures to make it a better place to live. I visited Kansas City this year and after wondering around the downtown area, Power and Light District, I began to feel that this was the area that my thesis site needed to be.



Kansas City already has some major architectural works by many distinguished architects. For example, some of the major architects include: Mead and White, Frank Lloyd Wright, Mies van der Rohe and Steven Holl. All of these architects have contributed some amazing designs to the city and there is still room for more.

The downtown area, also known as the Power and Light District, is still in the development stages with a lot of open sites to be used. While walking around I came across a wide open piece of undeveloped land connected to a broken up parking lot. After seeing this site, I knew that it was the place for the next piece of the cities development. The site is right on the edge of the already developing downtown area. With this site, I would not only encourage future design development around my site, but I would only continue to beautify the current area.

The site provides a very open area allowing me unlimited opportunities of placement and development. There would be no deconstruction of previous buildings and the landscaping is all flat so there would be no previous landscaping needed. Being on main road, there is a bus stop on the corner of my site. This will allow for the public easy transportation to and from my site. With no surrounding high-rises, my site has full access to sunlight. With the full access to sunlight any outdoor landscaping can be easily accomplished.



Site Characteristics

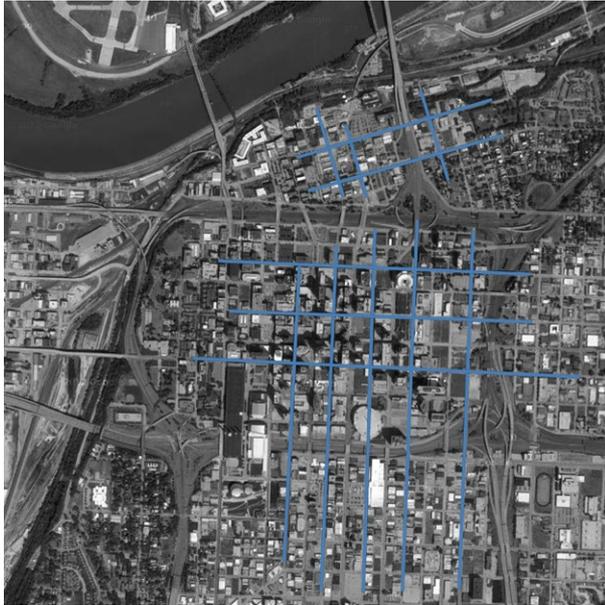


Figure 5.4



Figure 5.5

Grids

Kansas City, MO, definitely presents a grid system with its use of main roads and secondary roads. Eventhough the grid system may shift due to the weaving river, the grid system still stays in tack.

Textures

The textures in and around my site consist mainly of grassland. Textures of deciduous trees fade in and out of the areas around my site. Obviously due to changing seasons, the textures will change only slightly.

Geometries

The geometries around my site consist of mid-level to high-rise buildings. These geometries match with each other with their rectilinear shapes.

Shade and Shadow

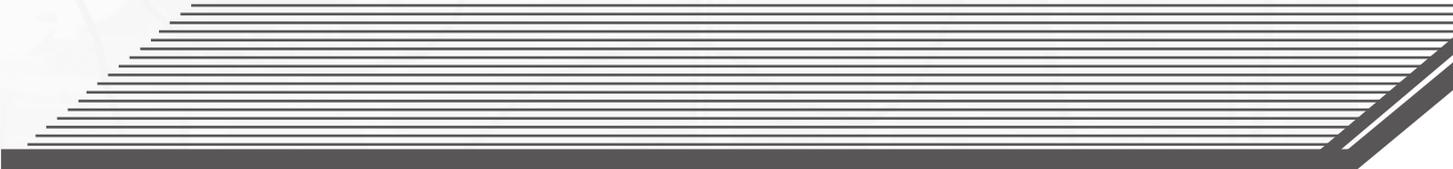
Shade and shadow will not affect my site at all. The current buildings to the North and West do not reach a height to cast any shade; and the lack of development to the East and South cast no shade or shadows.

Site Section

The diagram below shows a section cut through landscape one the East and West Axis. This diagram was created to understand the height difference within my site.



Figure 5.6



Built Features

The site is located right outside downtown Power and Light District. To the East and South there are open lots and to the North and West are mid-rise buildings. There is a main interstate to the East that is in view.

Lighting Quality

Lighting quality on my site is not obscured. There is no vegetation and all the surrounding buildings are either not close enough or not tall enough to obstruct the lighting quality. Different seasons will bring different lighting quality but once again with the lack of colorful vegetation and lack of color light quality will mostly stay that same.

Water

The Missouri and Kansas River intertwine around my site, but they are not influencing my site in any way.

Wind

Kansas City's average wind speed is 10.6 mph. Most to all the wind comes from the south. Rarely will high wind speeds hit the site, but wind will have little effect on my site.





Human Characteristics

Because Kansas City is continuing to grow, my site will be very much affected by human activity. Being in the downtown Power and Light District, my site will be affected by people of all ages. Most popular age range would be 18-30 years of age.

Distress

My site will receive distress from the changing of the seasons. During the winter months the site could be affected by heavy snows and during the summer months my site could be affected by lack of rain.

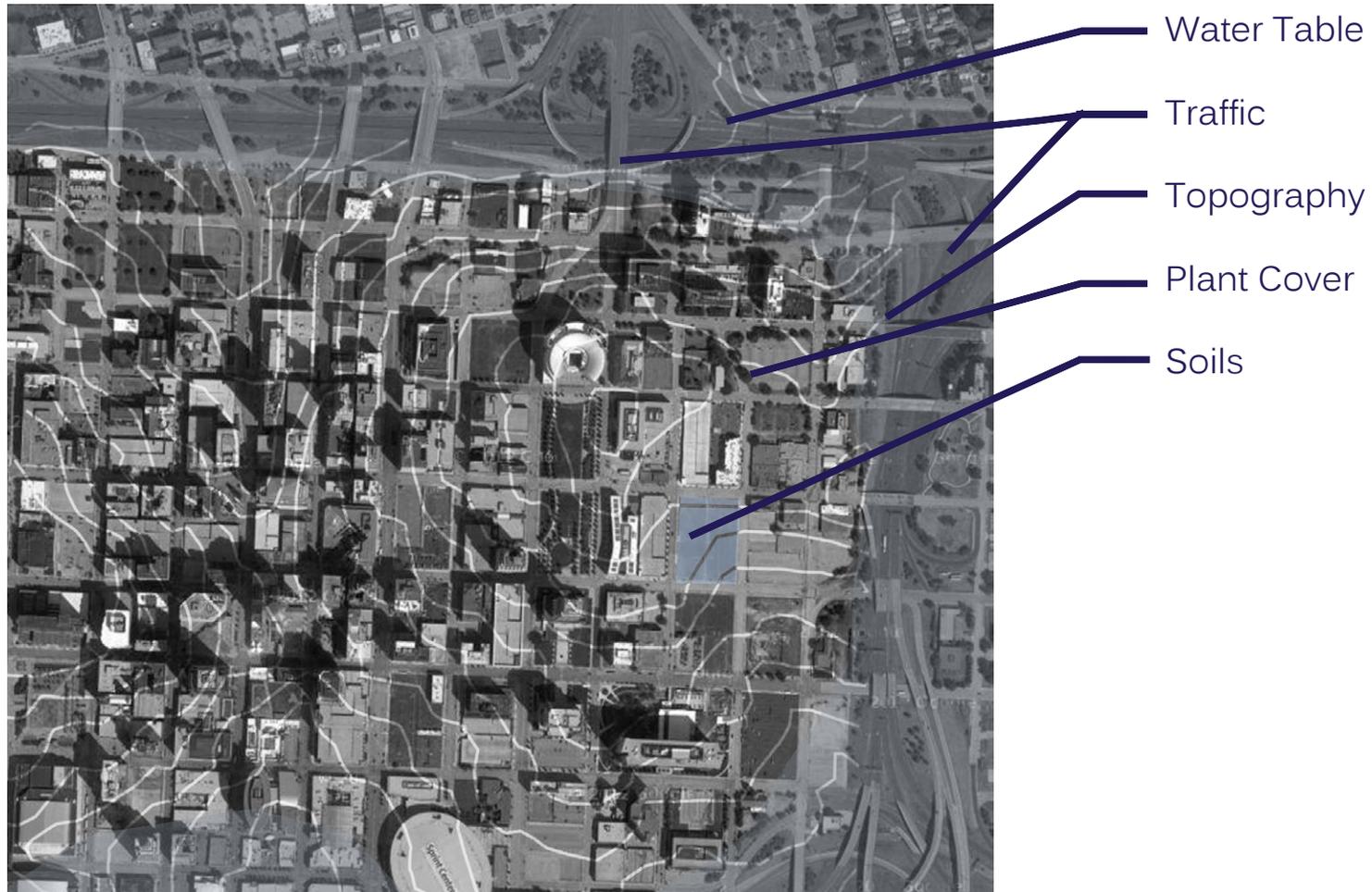
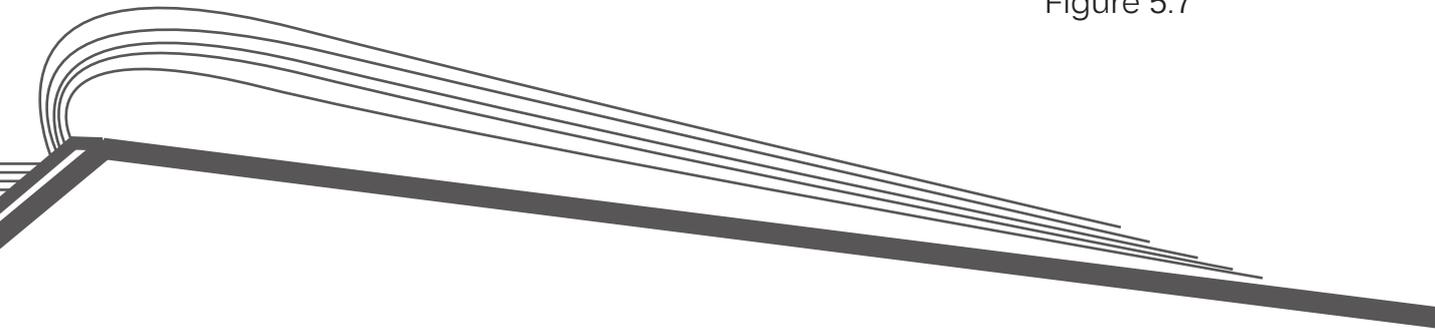


Figure 5.7



Traffic

Traffic will be a huge influence on my site. The site is located on a main road (E 11th St) and is located two blocks away from interstate 70. There is also a bus stop on the corner of E 11th St and Cherry St. Pedestrian traffic will be less than vehicle traffic. With the site located on the edge of the Power and Light District, pedestrian will not be walking around the site.

Soils

The soils of the area fall into two divisions, the soils of the uplands and the soils of the valley. The soils on my site are a pure medium to fine sand. It is sufficiently compact to hold itself in position, except in places where the vegetation has been removed.

Topography

The topography of the site is gradually sloped from west to east at a 2 - 6% slope. The slope from north to south also will slope at a 2 - 6% slope. These slopes will be sufficient enough for water drainage.

Water Table

The Kansas River is a concern between Topeka and Kansas City due to the rapid population growth and urban development. There are 16 permitted wastewater discharge sites with 22 others located on tributary streams. My site is currently placed where flooding should not be an issue. Water would run off the site before flooding it.

Plant Cover

The plant cover on the site consists of grass. There is no other vegetation on site.



This base map will allow the reader for a better understanding of the site. On the following pages are images that view the surrounding areas .

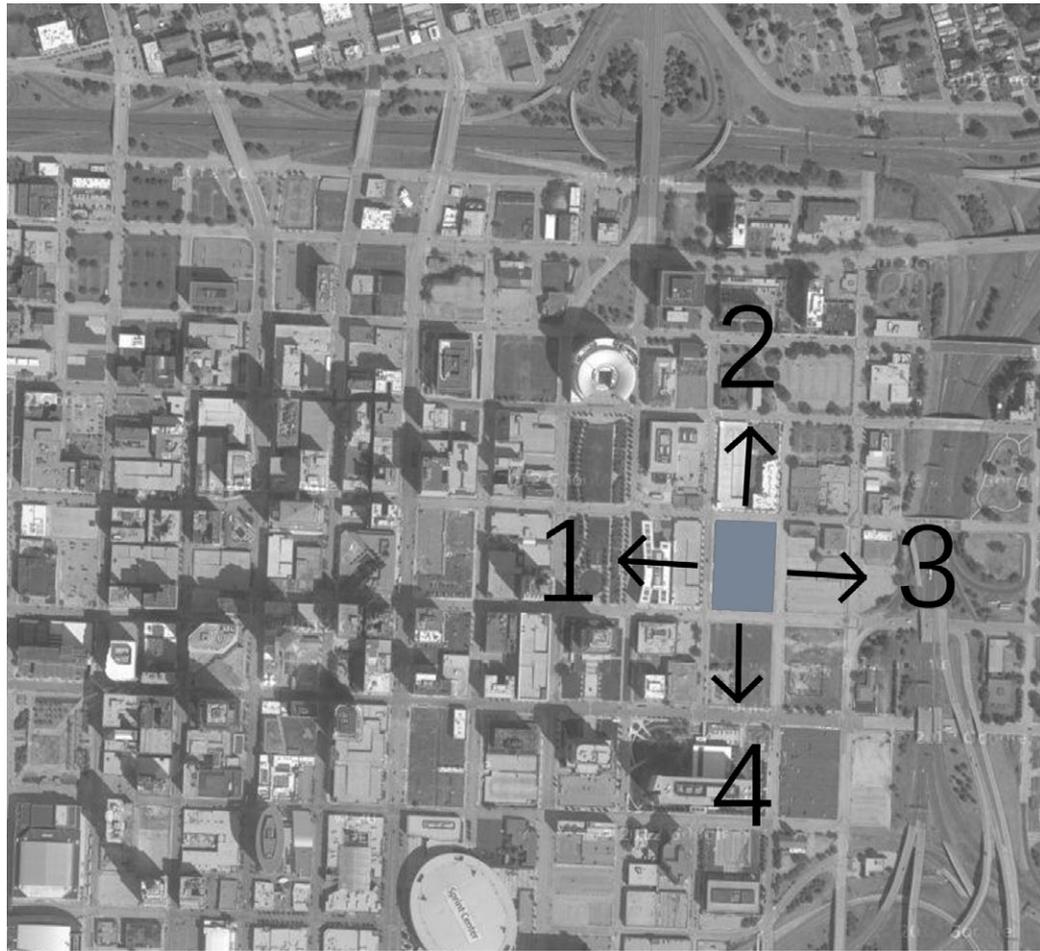
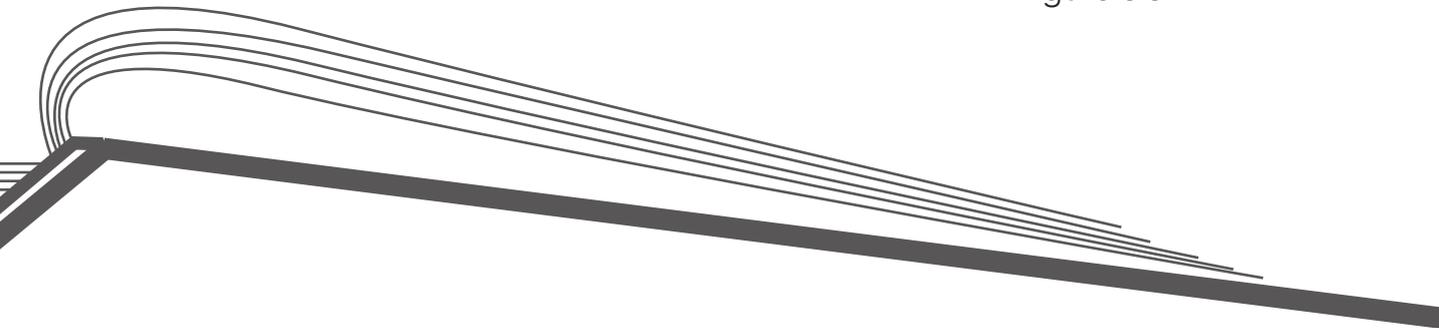


Figure 5.8

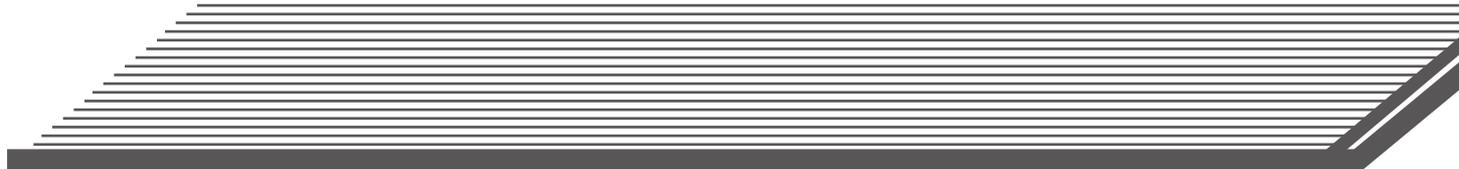




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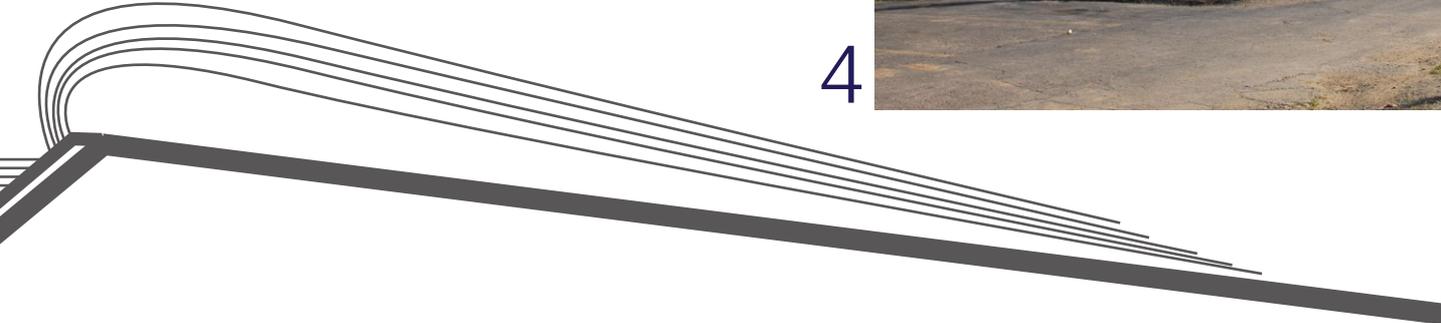




3



4



topography map

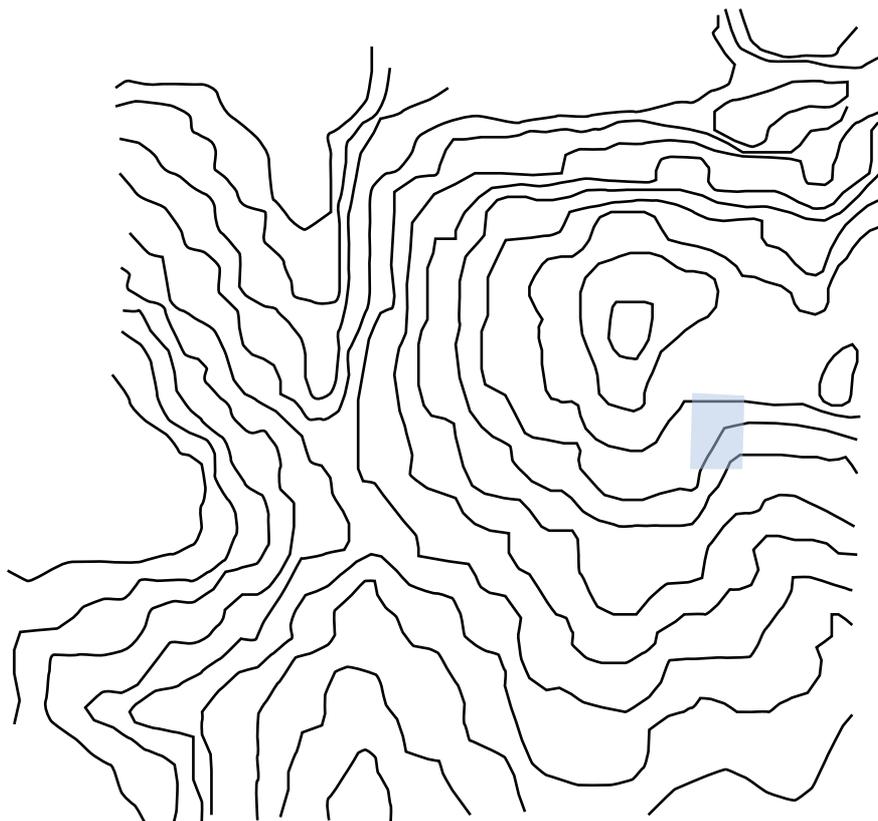


Figure 5.9

noise map

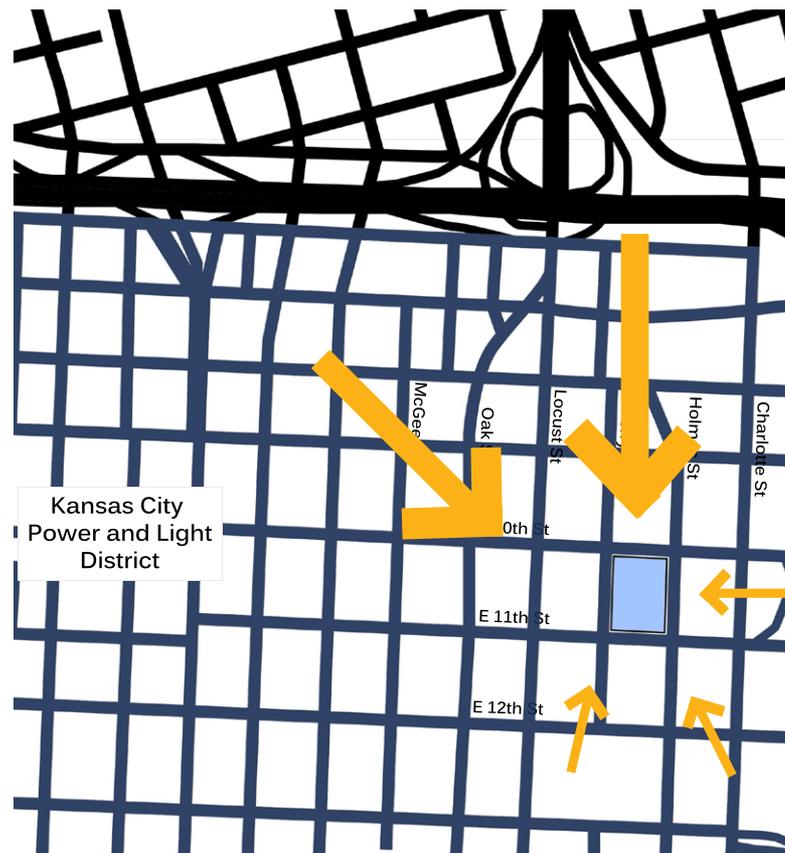


Figure 6.1

Climate Data



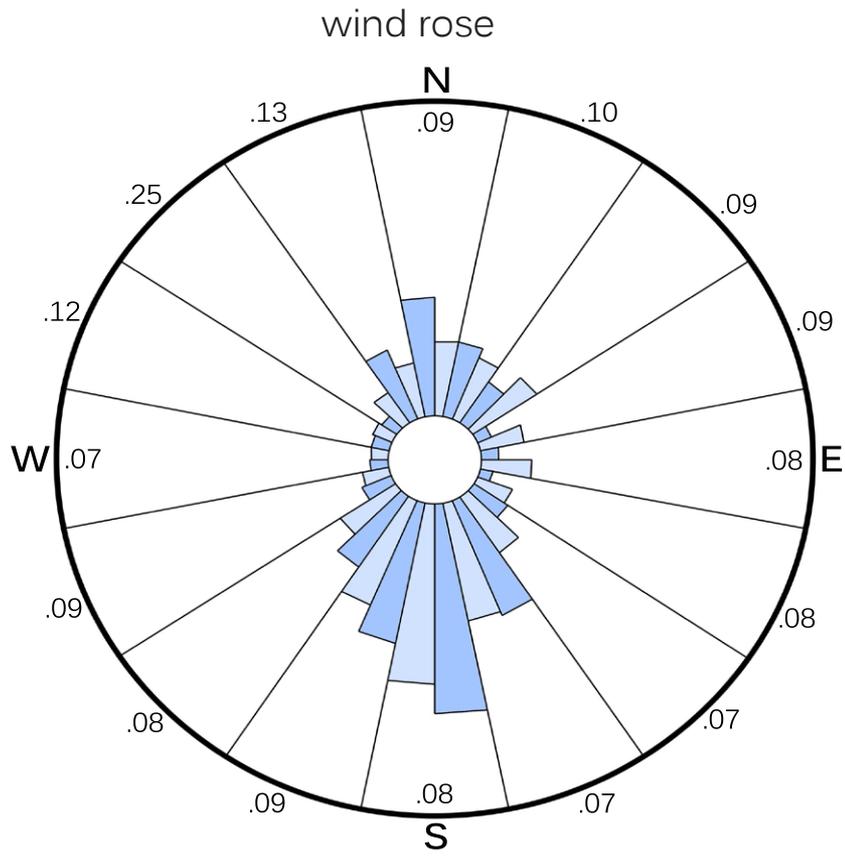


Figure 6.2

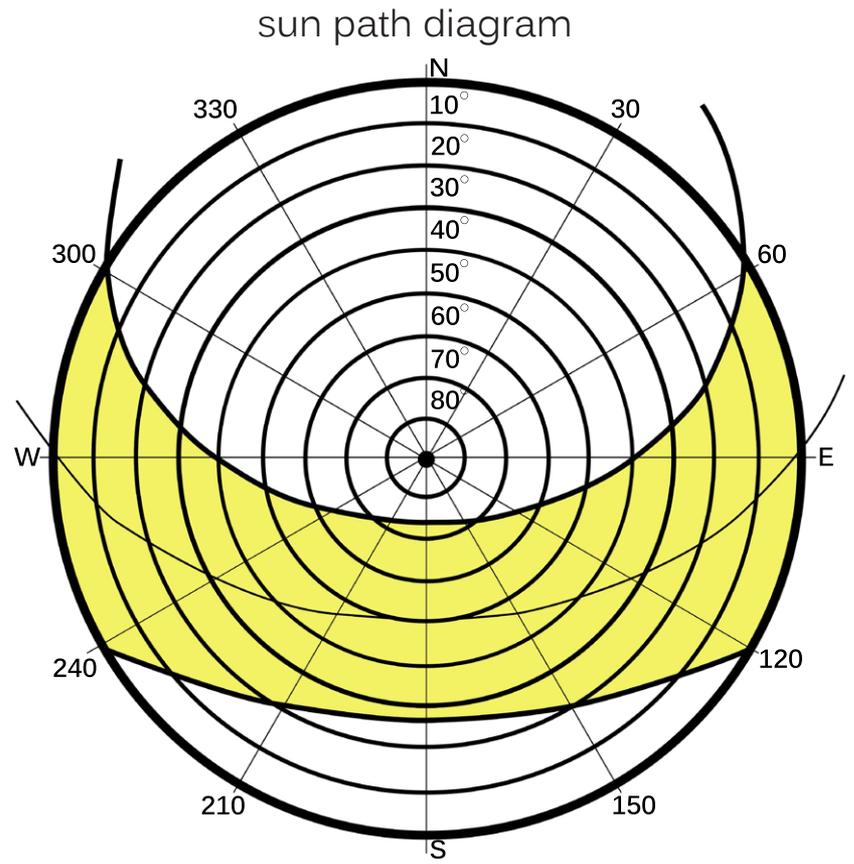
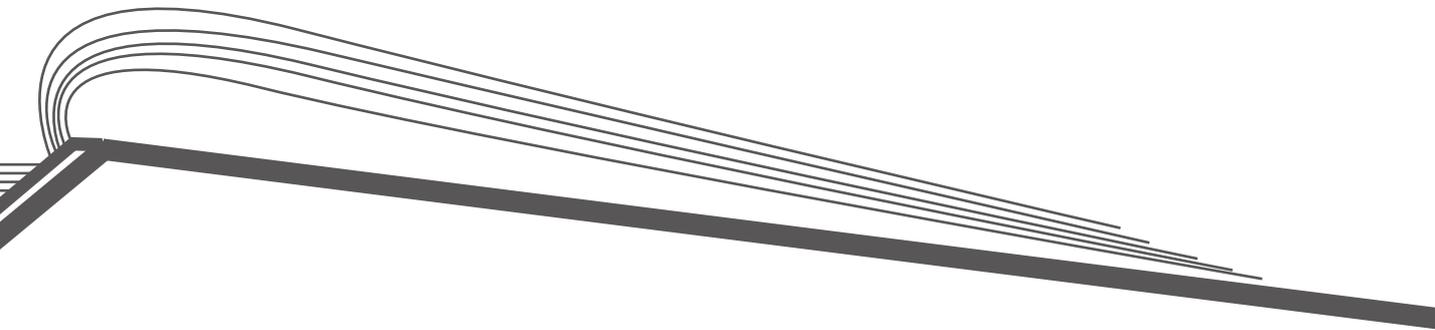


Figure 6.3



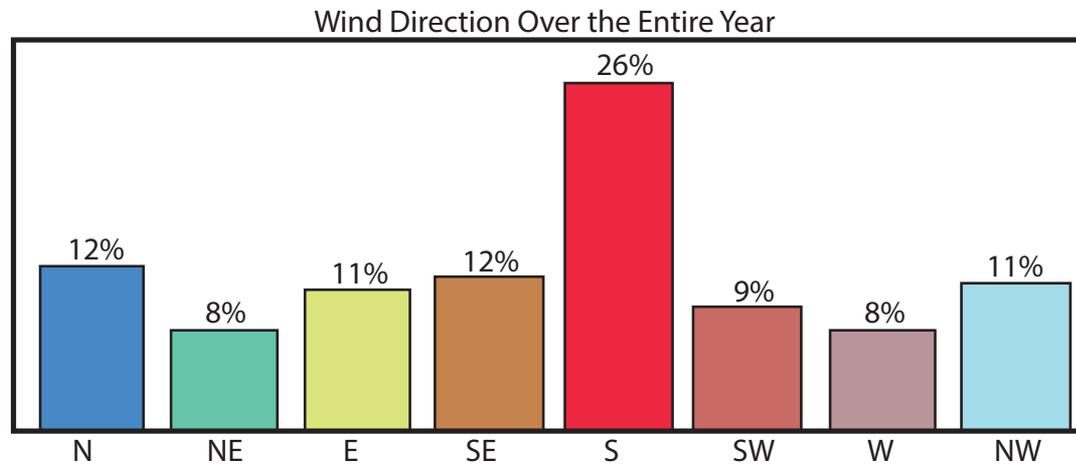
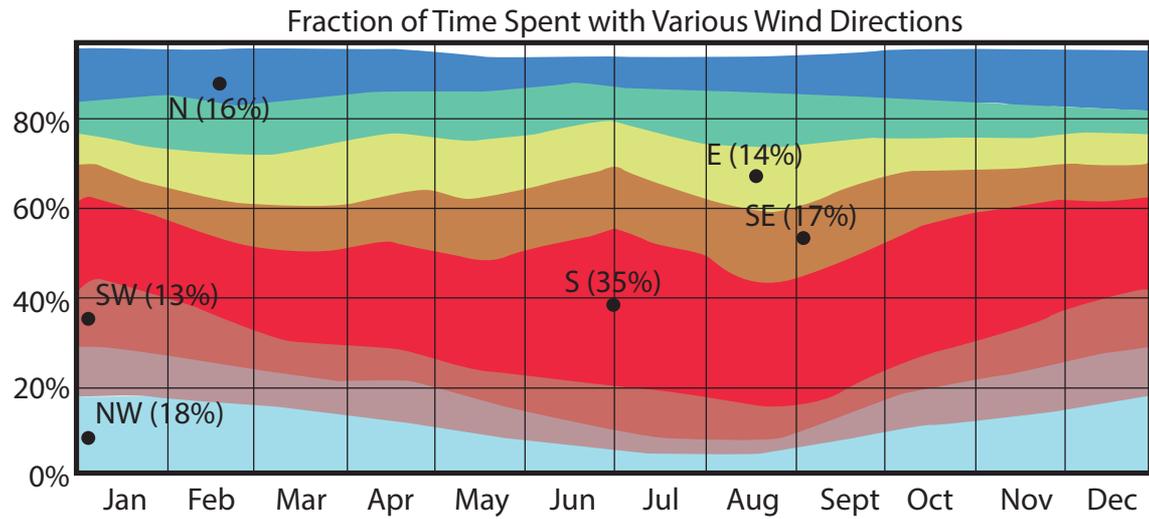


Figure 6.4

Median Cloud Cover

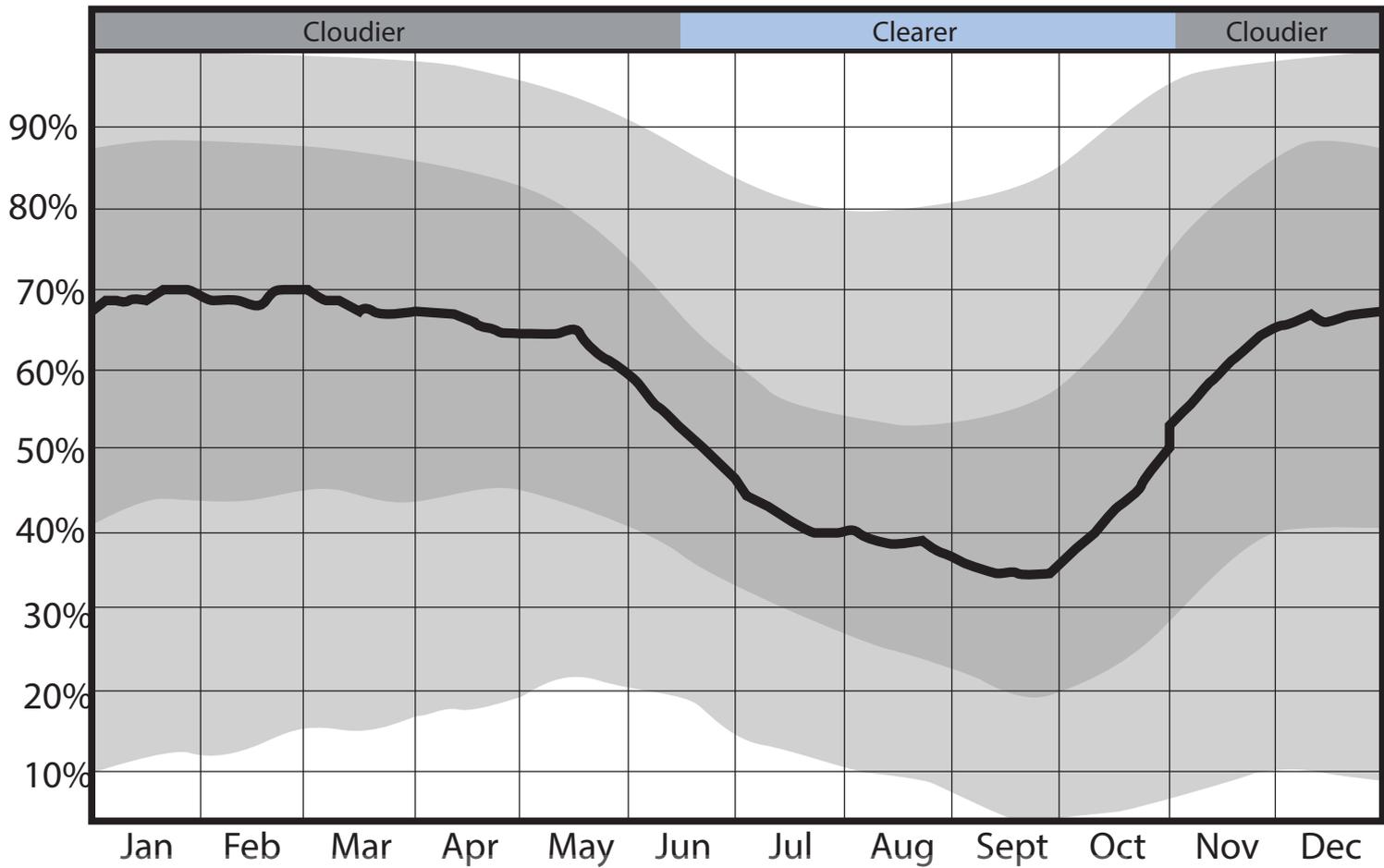


Figure 6.5

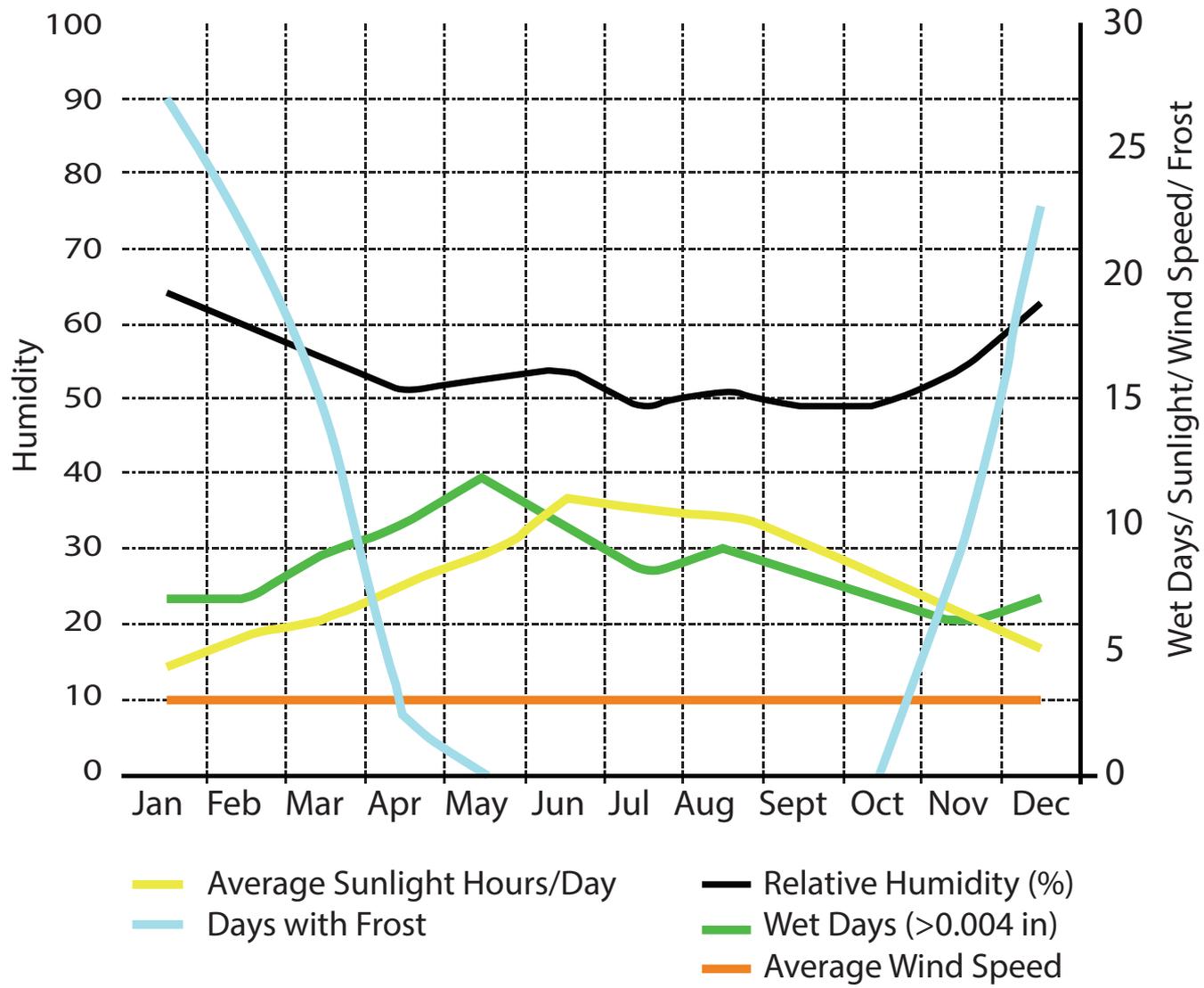
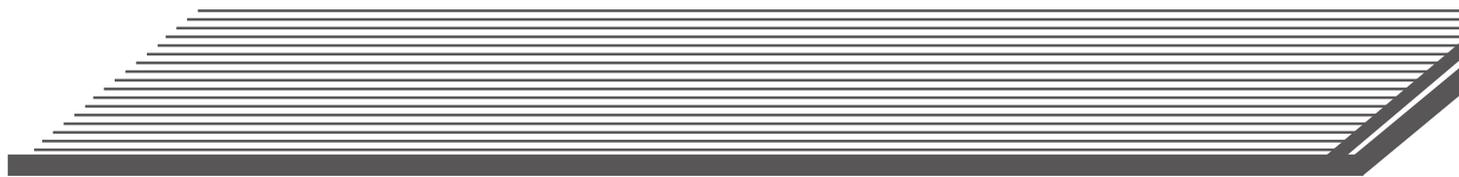


Figure 6.6



Temperature/ Precipitation Chart

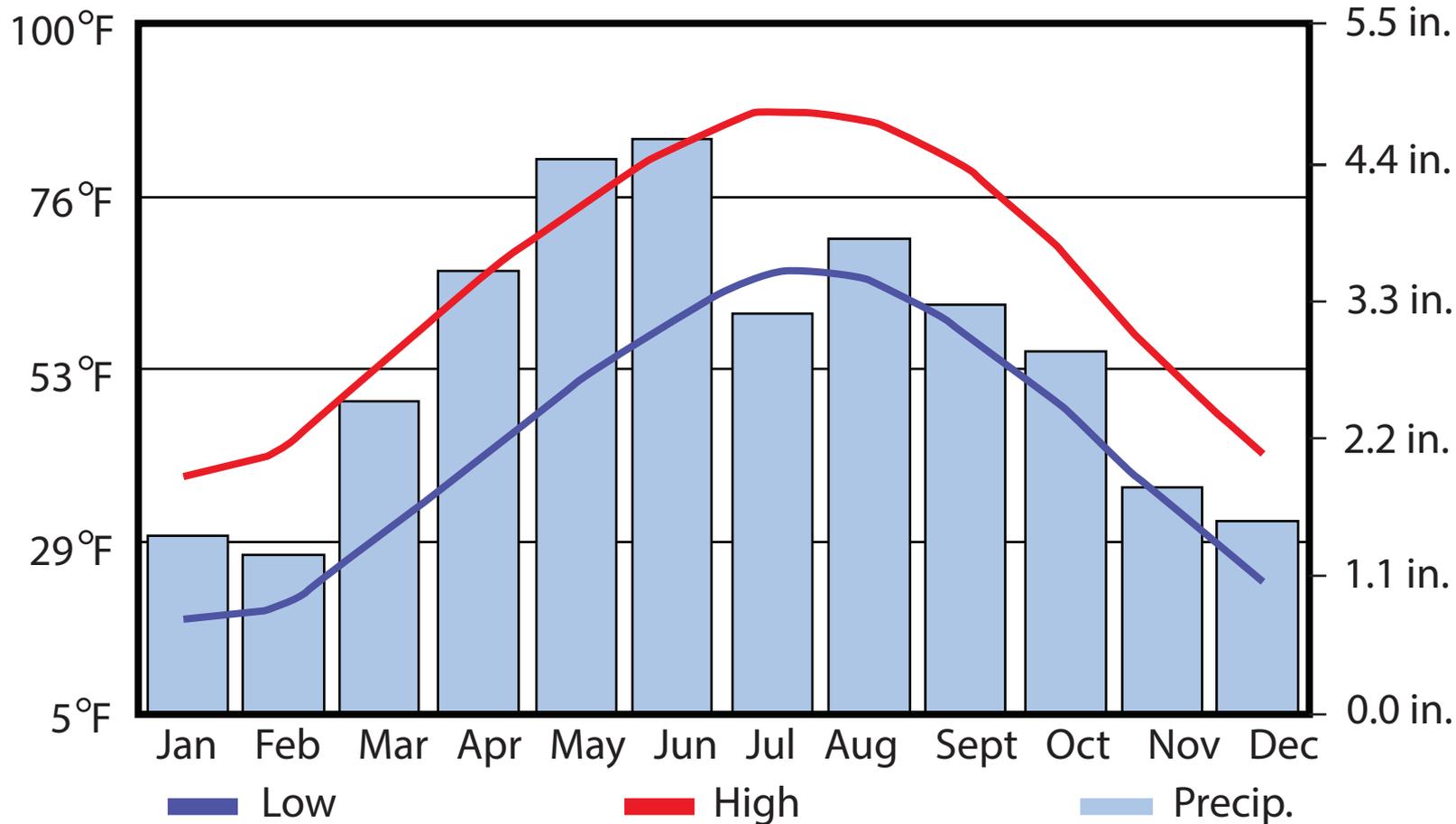
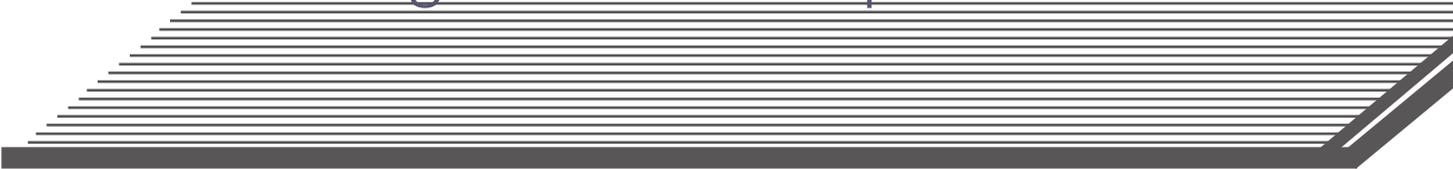


Figure 6.7

Programmatic Requirements



Library: Overall - 30,000 sq. ft

- Library - 22,500 sq. ft
- Reading Area - 1,500 sq. ft
- Computer Area - 1,500 sq. ft
- Lounge Area - 2,000 sq. ft
- Storage - 2,000 sq. ft
- Restrooms - 500 sq. ft

Administration: Overall - 5,000 sq. ft

- Offices - 2,500 sq. ft
- Conference Rooms - 1,500 sq. ft
- Storage - 500 sq. ft
- Restrooms - 200 sq. ft
- Janitorial - 300 sq. ft

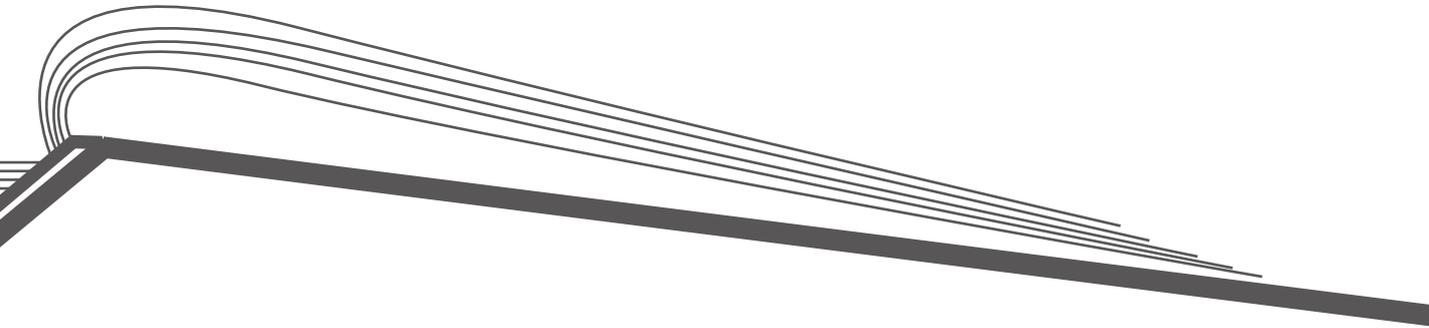
Museum/Exhibition/Art: Overall - 13,000 sq. ft

- Museum Space - 4,000 sq. ft
- Exhibition Space - 4,000 sq. ft
- Art Space - 4,000 sq. ft
- Storage - 1,000 sq. ft

Rooftop/Green Space: Overall - 3,000 sq. ft

Restaurant: Overall - 5,700 sq. ft

- Dining - 3,000 sq. ft
- Bar - 1,000 sq. ft
- Kitchen - 1,000 sq. ft
- Storage - 500 sq. ft
- Restrooms - 200 sq. ft

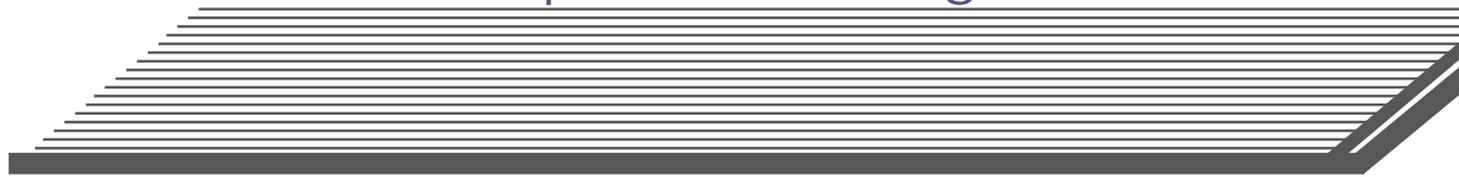


interaction matrix



Figure 6.8

Space Planning



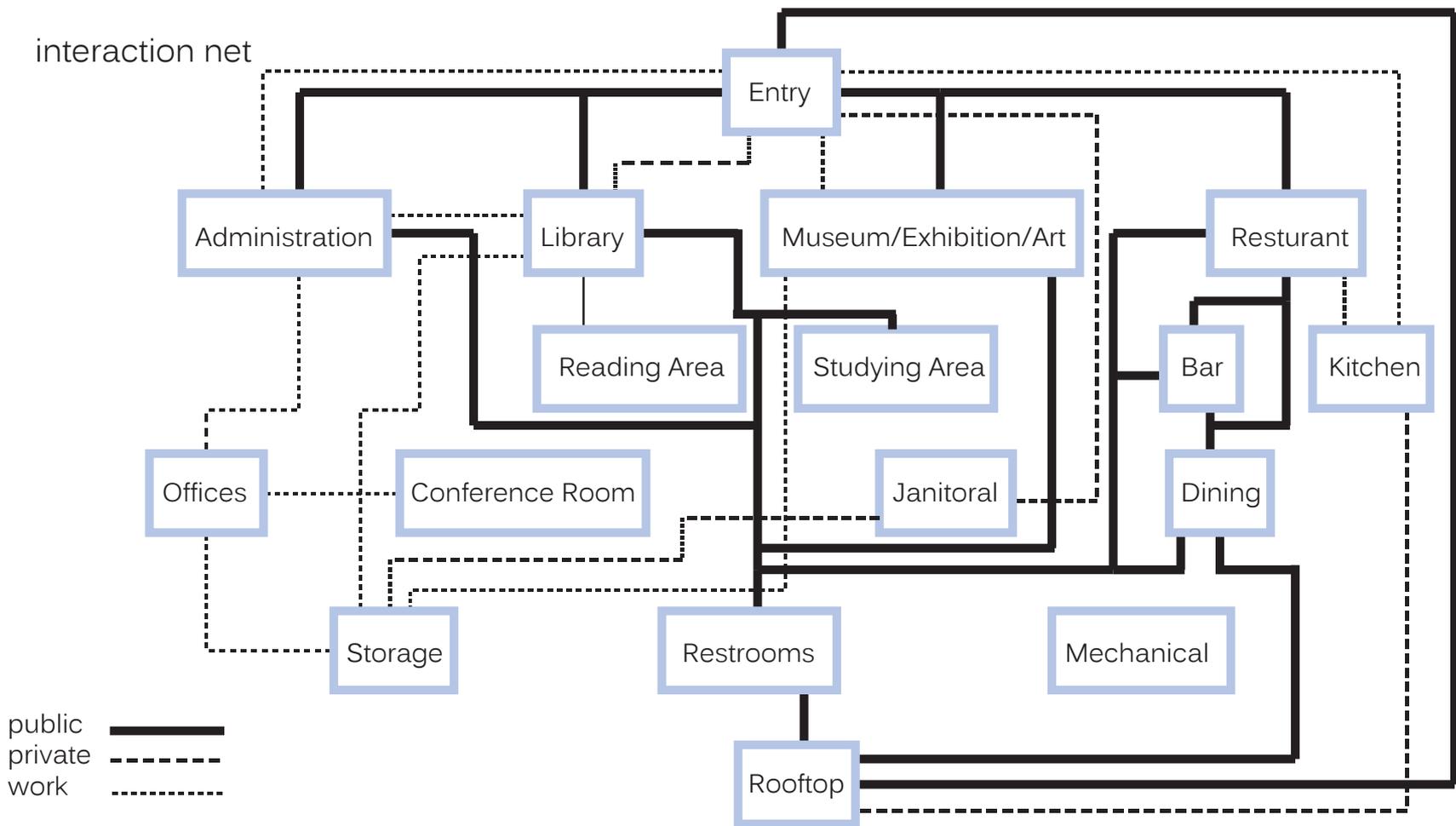
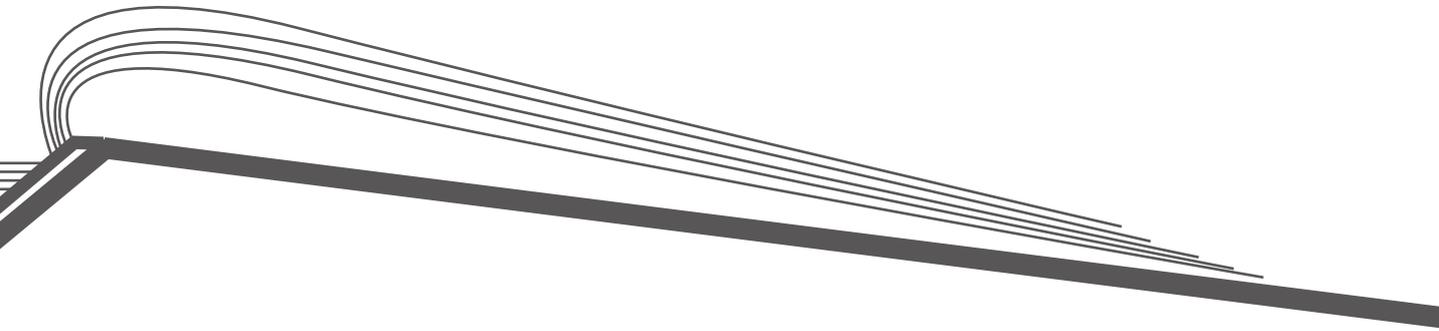
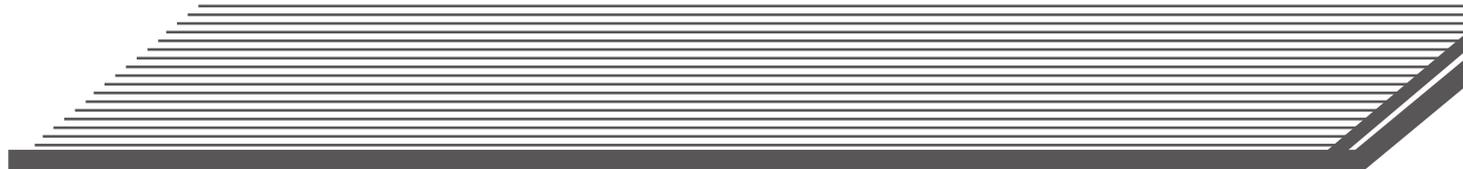


Figure 6.9



Process Documentation



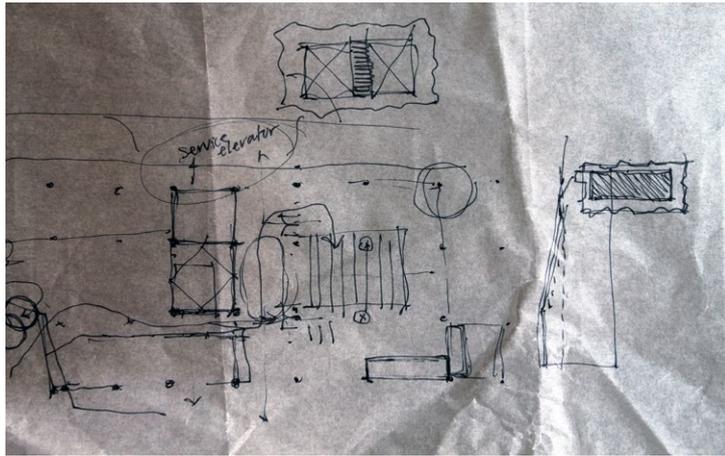


Figure 7.1

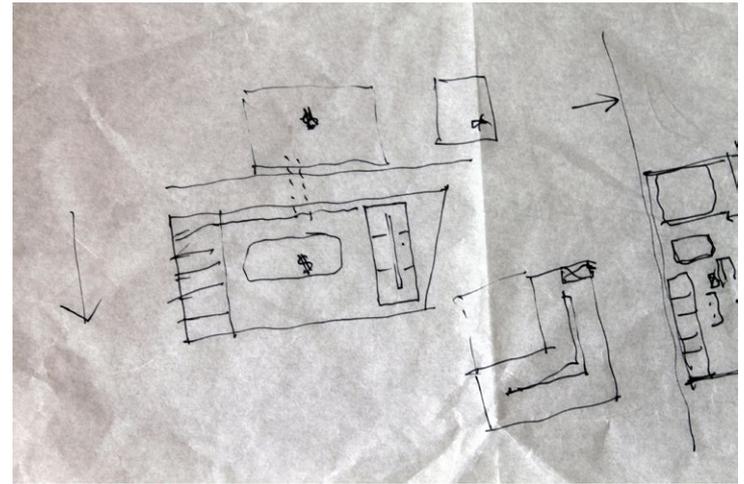


Figure 1.2

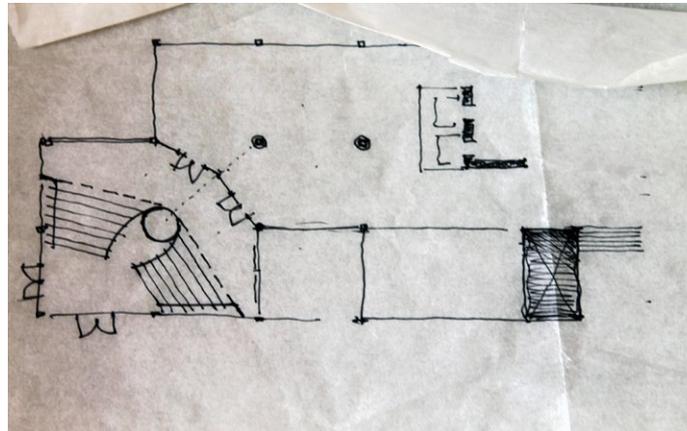


Figure 7.3

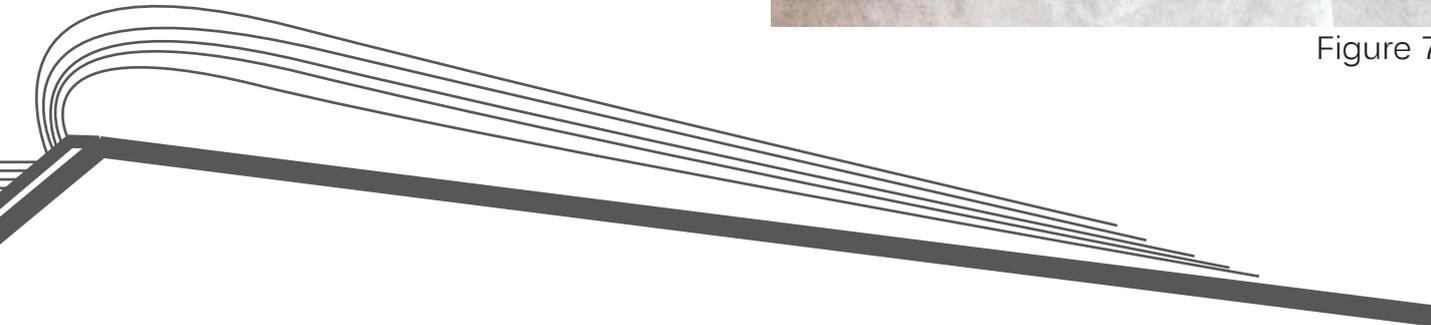


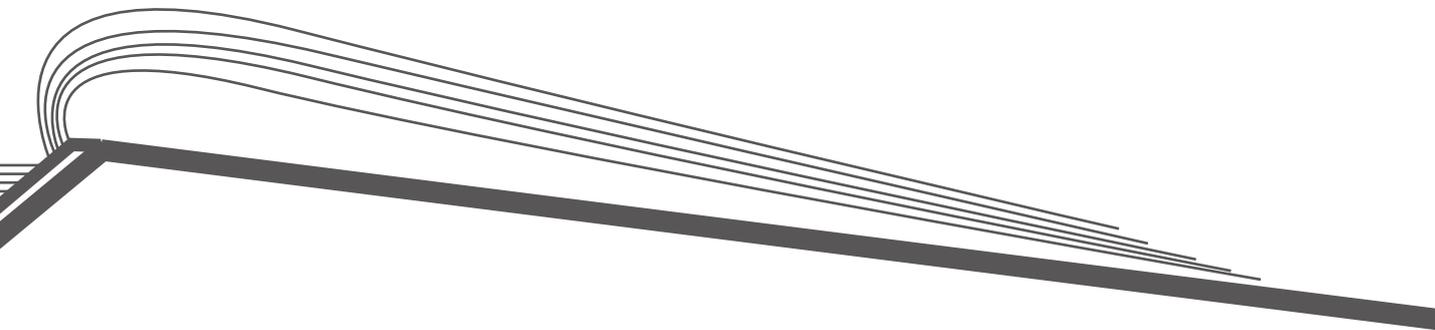


Figure 7.4

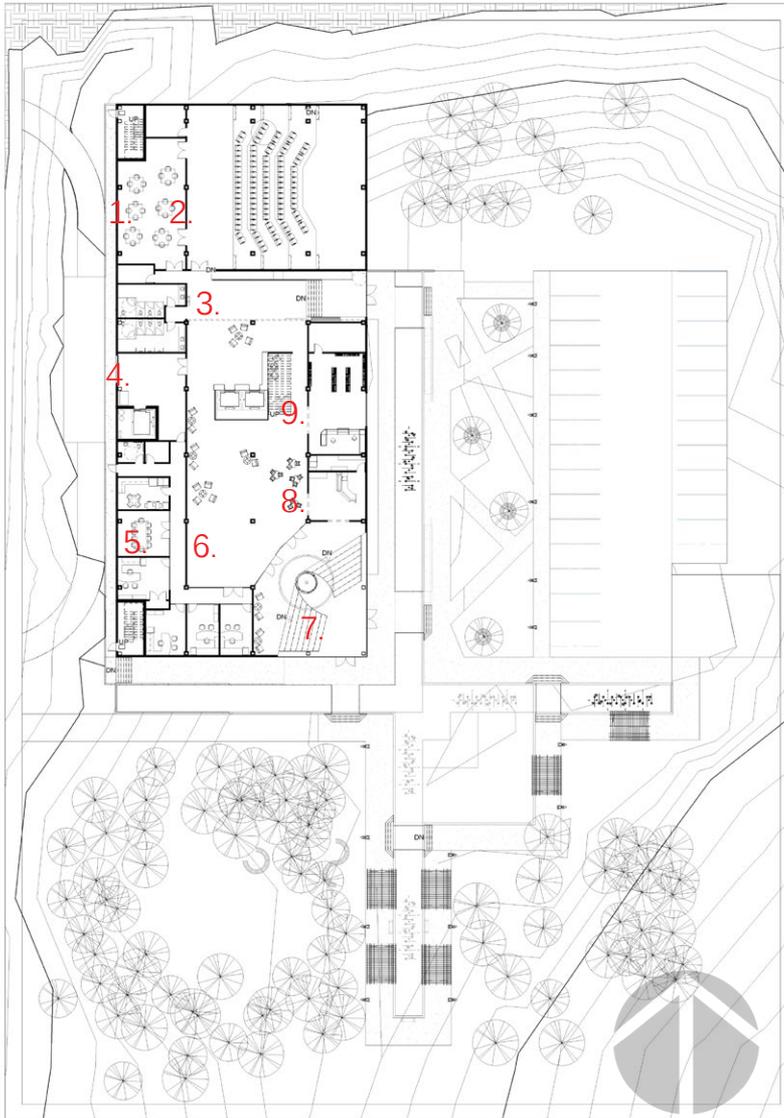
Kansas City Public Library Presentation



Figure 7.5



Site Plan / Ground Floor



Legend Ground Floor:

- 1. Seminar Rooms
- 2. Auditorium
- 3. Back Lobby
- 4. Mech. Room
- 5. Offices
- 6. Front Lobby
- 7. Circulation Entrance
- 8. Cafe'
- 9. Bookstore

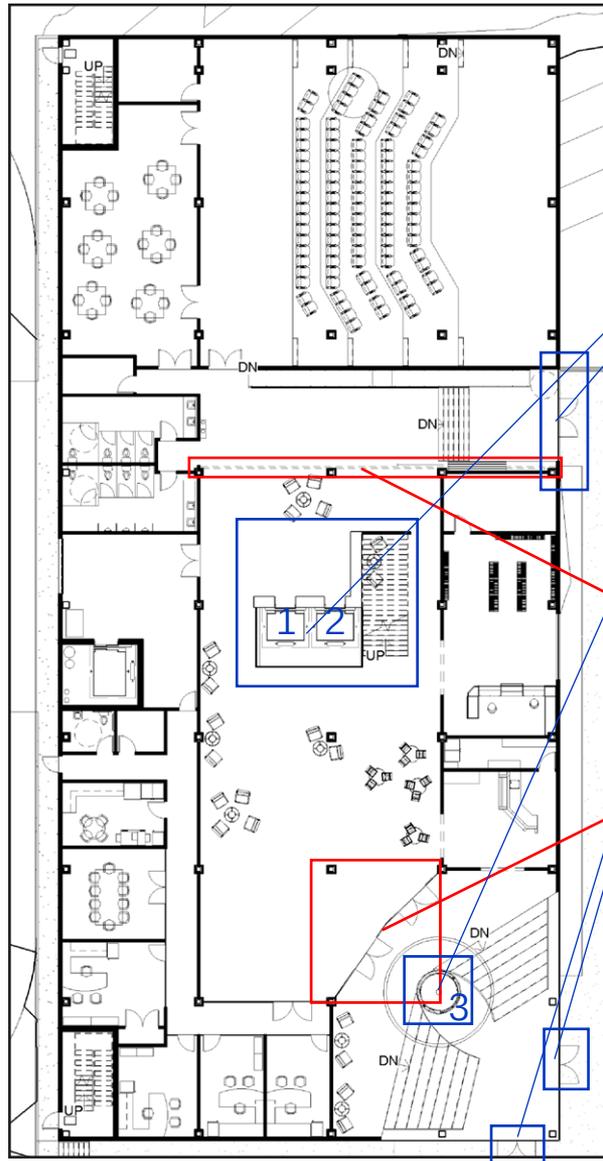
Figure 7.6

Library Lobby Entrance



Figure 7.7

Movement and Security



Movement

Creating a Front Lobby and Back Lobby makes for easy movement throughout the space. Elevators are designated for specific floors, allowing each guest direct access to their desired location.

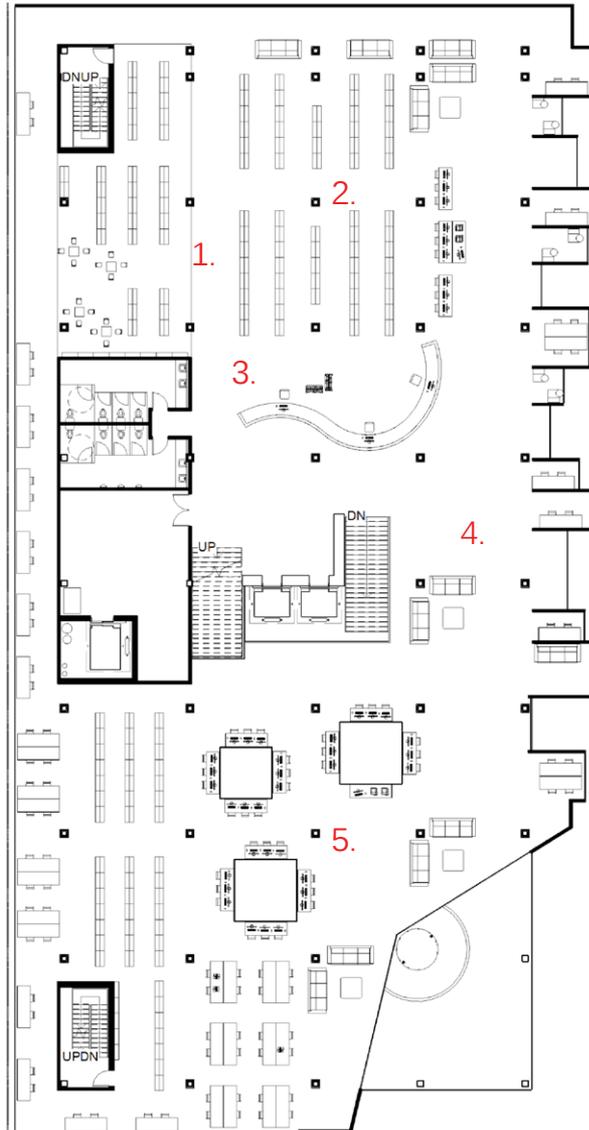
- Elevator 1 : 1 - 2 - 3 - 4
- Elevator 2 : 2 - 3
- Elevator 3 : 1 - 4

Security

With the library beginning on the second floor, security is a necessity.

- Front Lobby : Locks with vestibule doors.
- Back Lobby : Locks with sliding glass doors.
- Floor Controlled Elevators : Keeps each guest in desired location.

2nd Floor Plan



Legend 2nd Floor:

1. Kids Corner
2. Youth Stacks
3. Library Entrance
Reference Desk
Bathrooms
4. Study Nooks
5. Media/ Study Area



Figure 7.9

Library Entrance

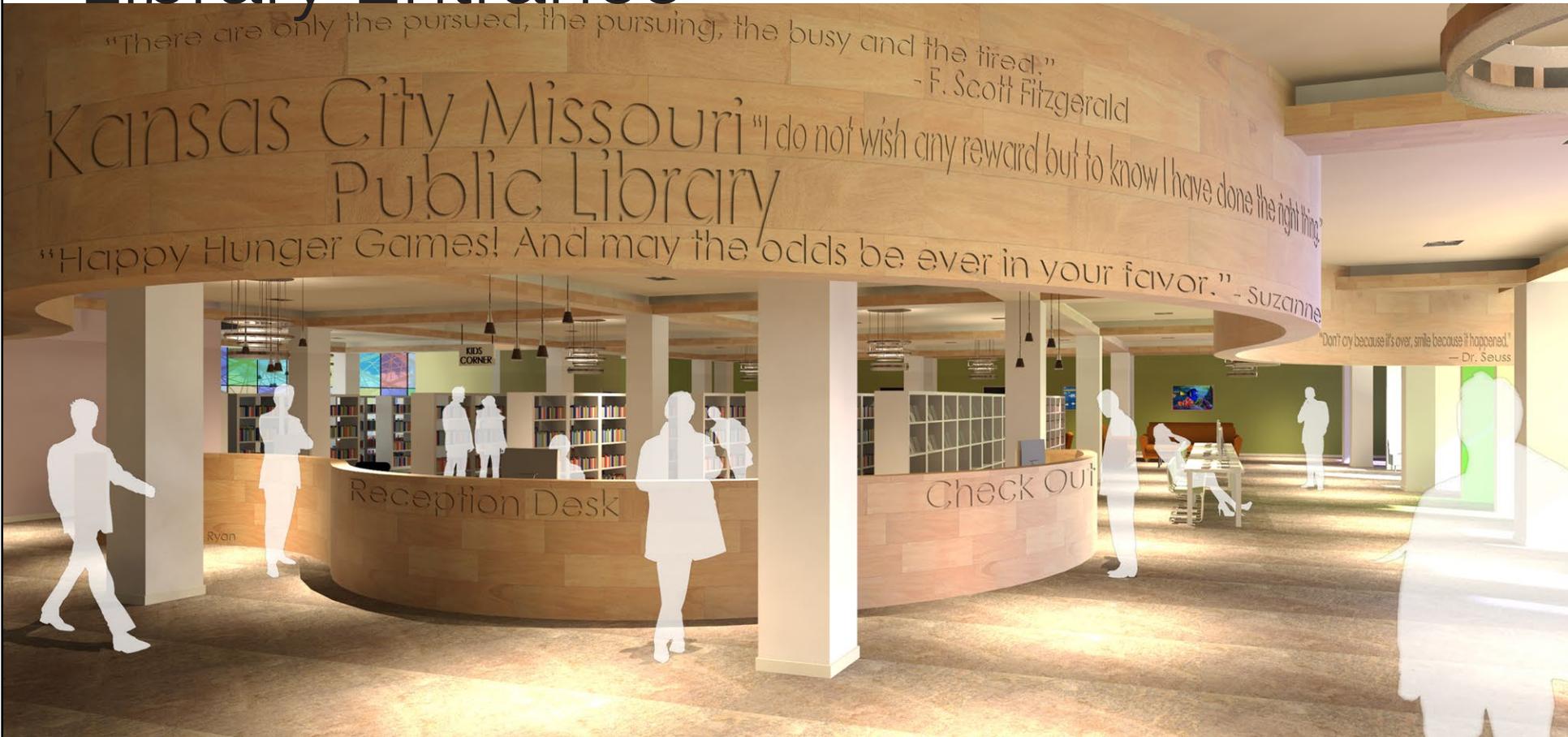


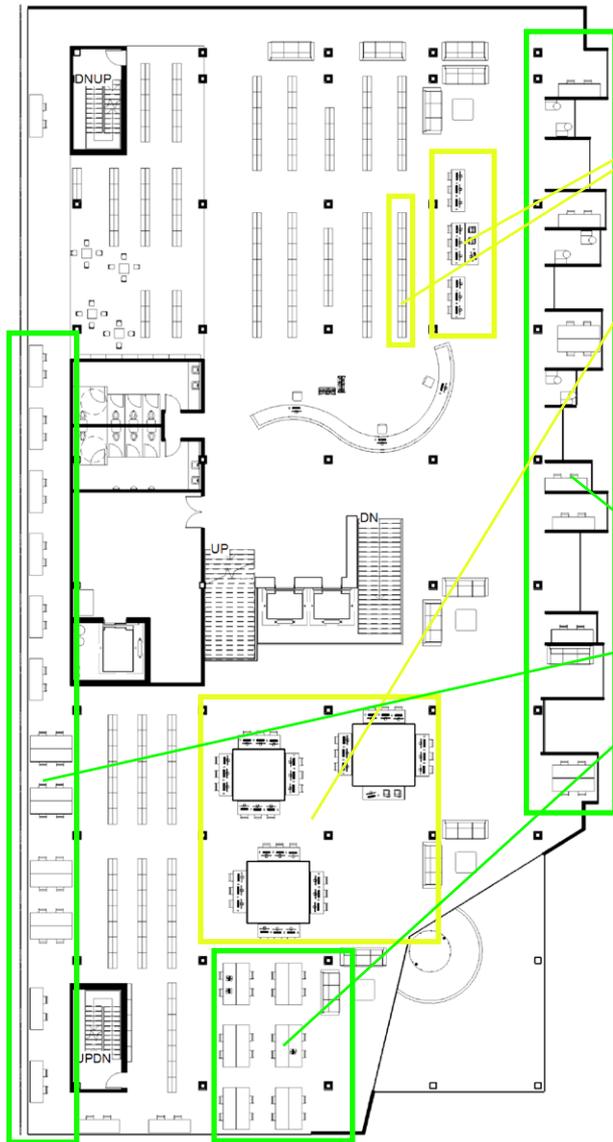
Figure 8.1

Library Media/ Study Area



Figure 8.2

Media and Study



Media

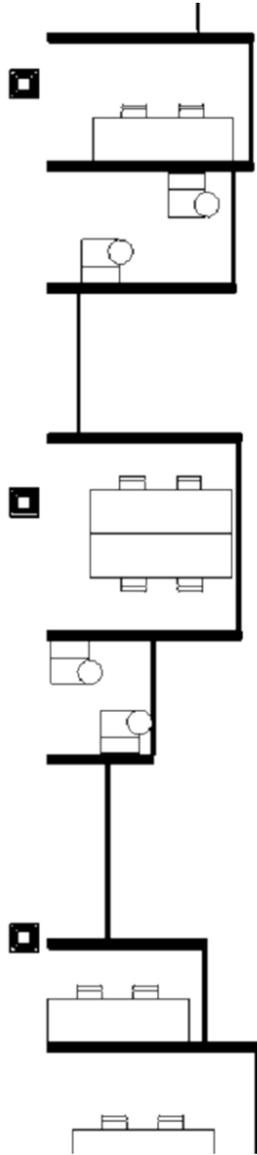
The library will offer many computer clusters to the guests. Every computer cluster will have a copy and print station.

- **IPADS/Tablets** : 100 IPADS/Tablets can be checked out at the library for guests to use. Guests will be able to scan a bar code and read any book digitally.

Study

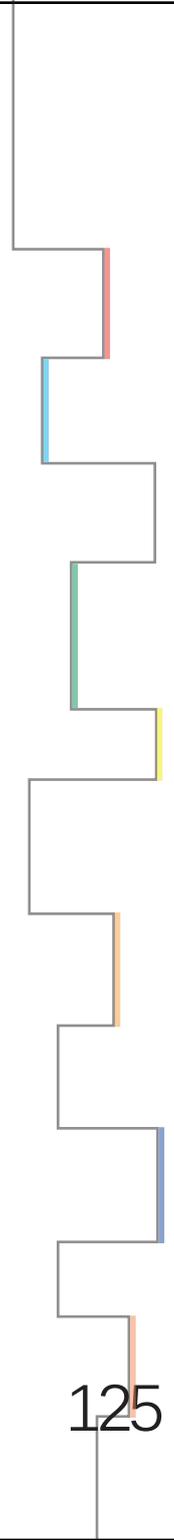
One of the library's top spacial priorities goes towards study space. There are options for complete private studying or spaces for group use.

Study Nooks

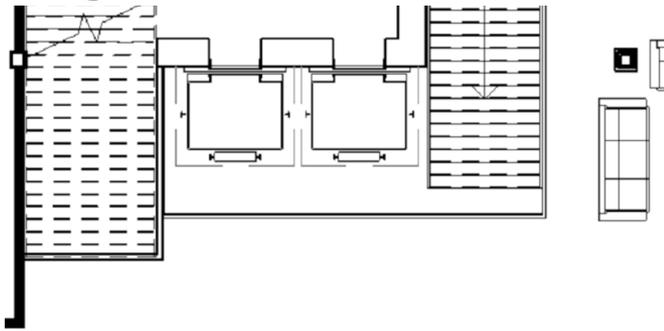


The study nooks are on both the 2nd and 3rd floor. They provide privacy within the library for guest to enjoy while trying to learn, read or simply relax. Each study nook has a window facing East, some even cast color.

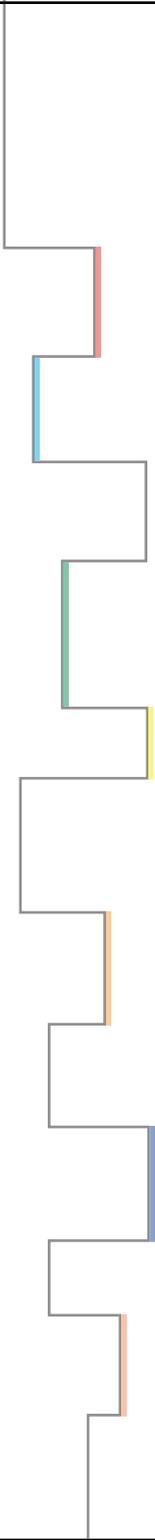
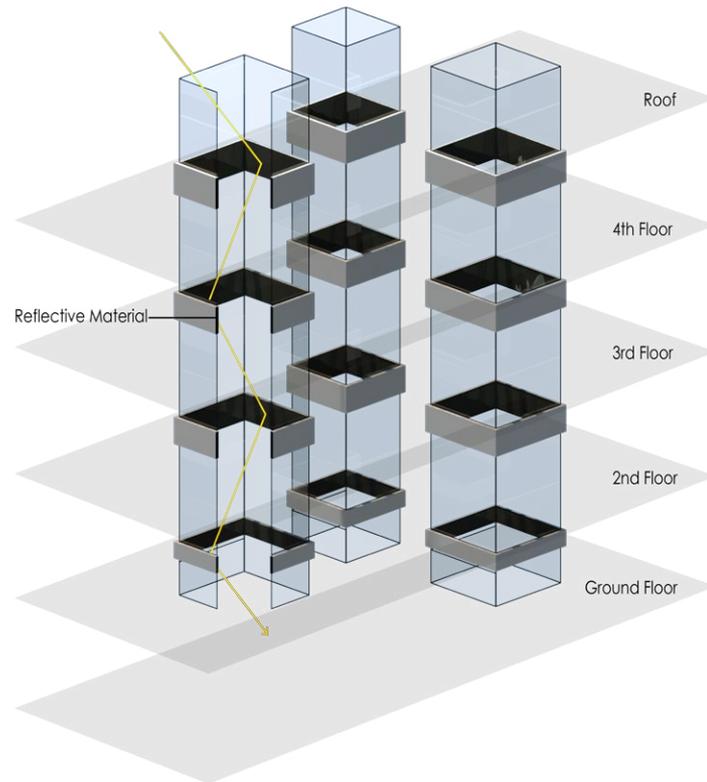
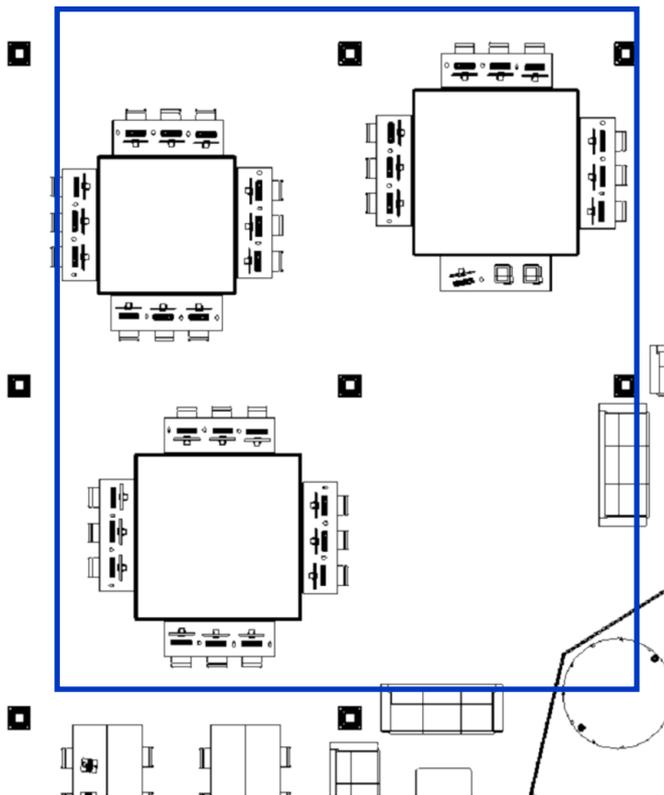
Figure 8.4



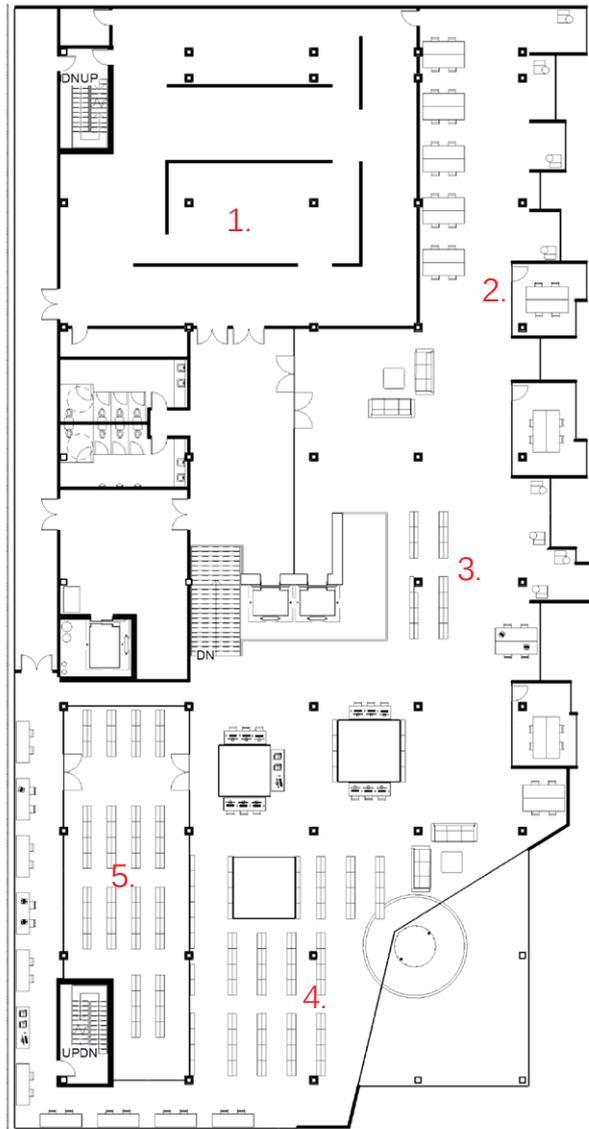
Light Wells



The Light Wells run from roof to ground floor. They will offer sunlight to each floor.



3rd Floor Plan



Legend 3rd Floor:

- 1. Exhibition
Museum
Art Space
- 2. Study Space/ Nooks
- 3. Library 3rd Floor
- 4. Adult/College Stacks
- 5. Archives



Figure 8.6

Library Level 2

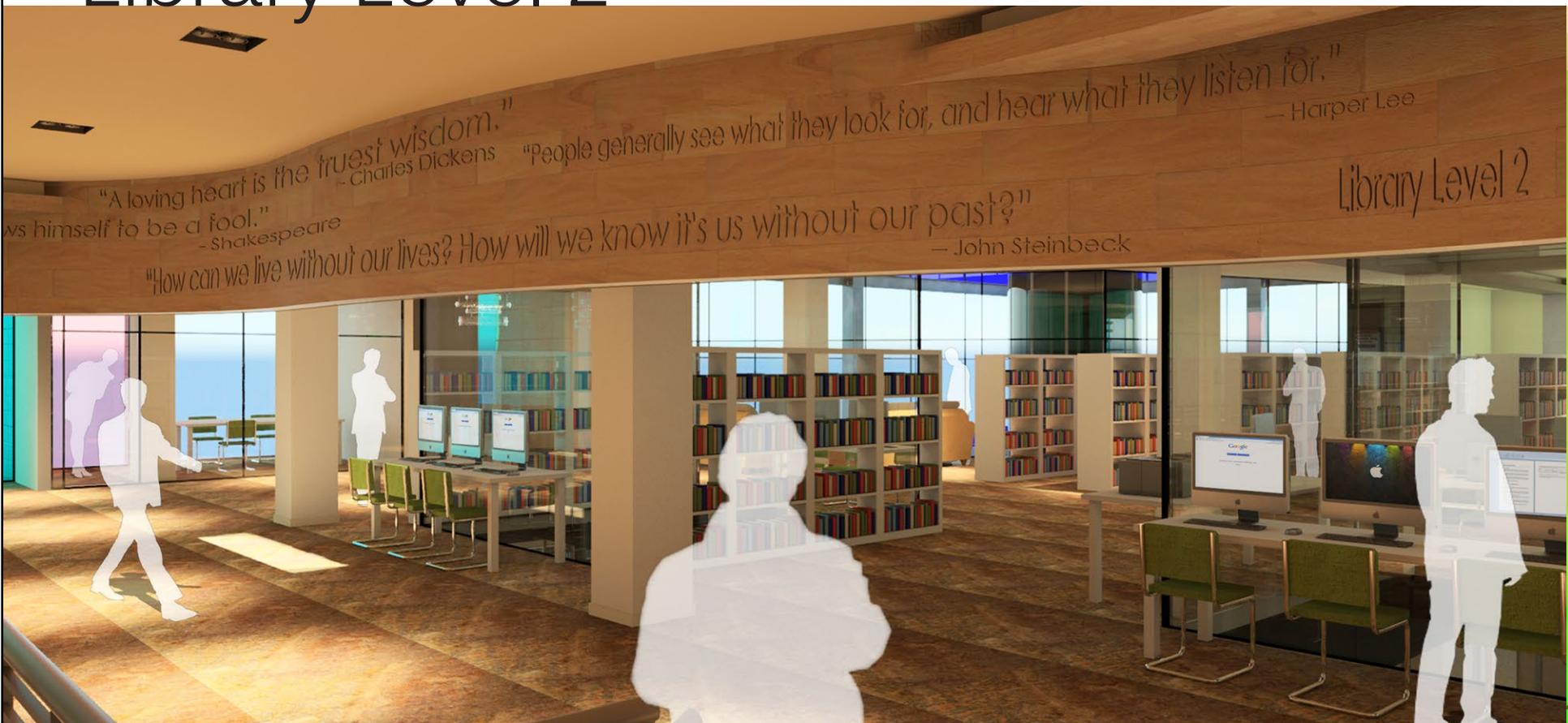


Figure 8.7

Library Level 2



Figure 8.8

Library Level 2 - Study Area

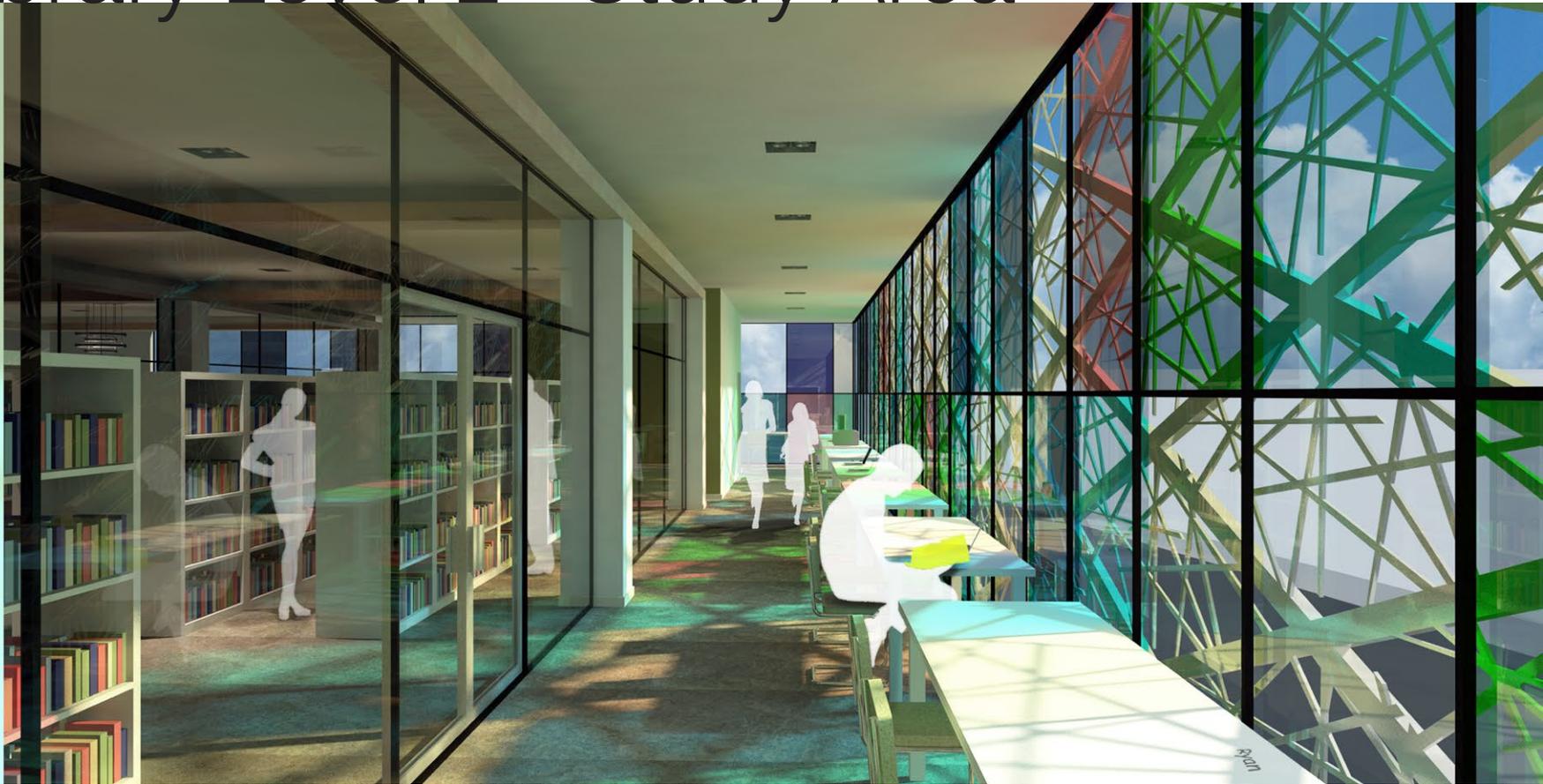
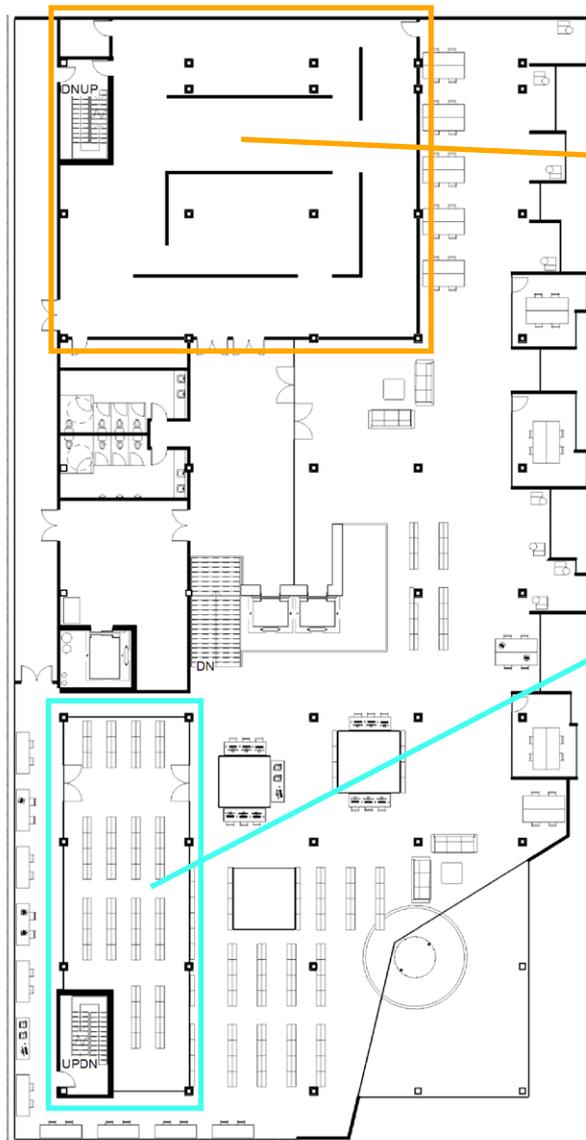


Figure 8.9

Exhibition/Art/Museum and Archives



Exhibition/ Art/ Museum

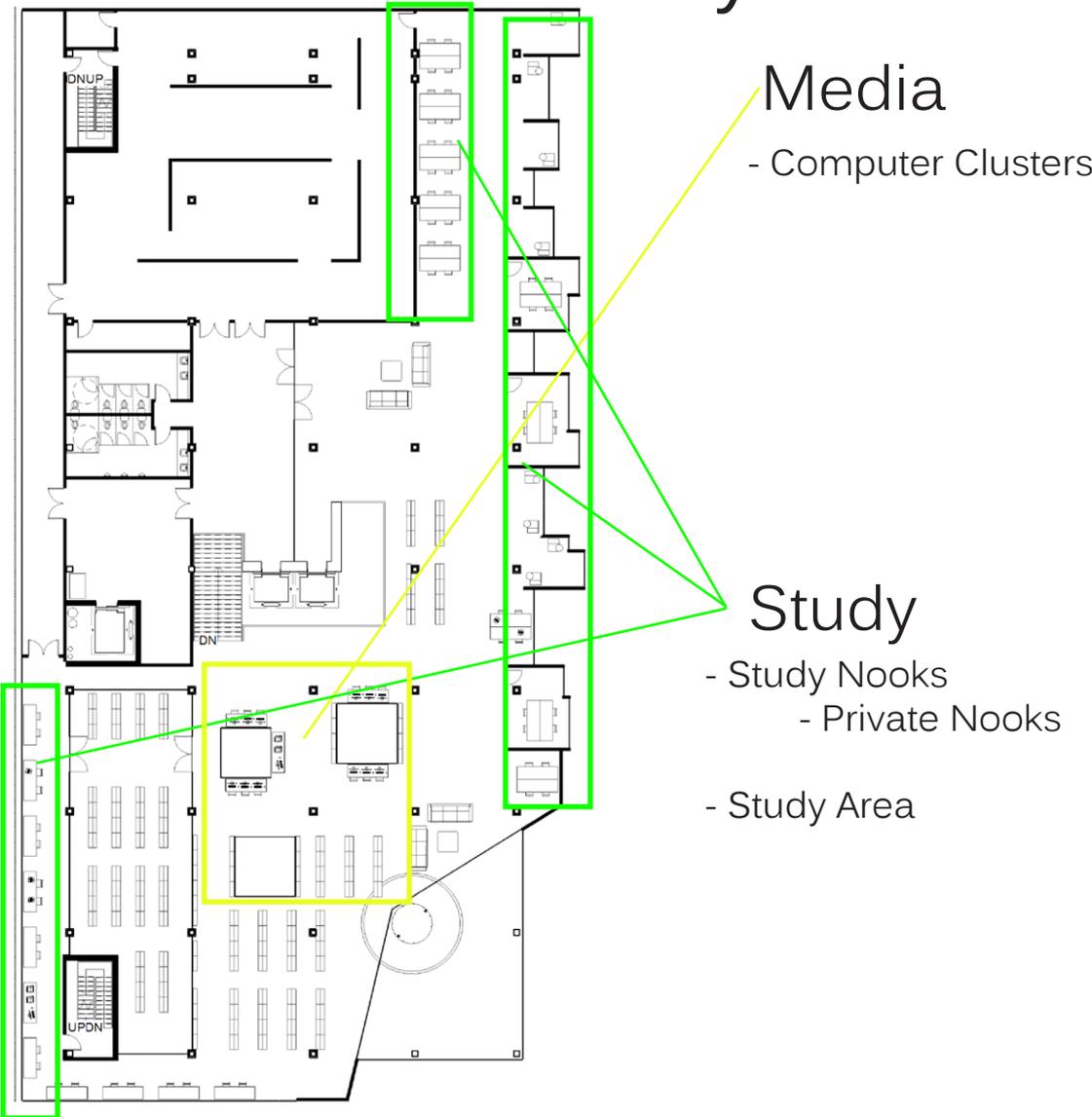
This multi-use room has movable walls allowing it to accompany any event needed. Food can also be catered from the 4th floor restaurant.

Archives

The library will have room for private archives. The room will be surrounded by glass so that guests can easily see the collection.

Figure 9.1

Media and Study

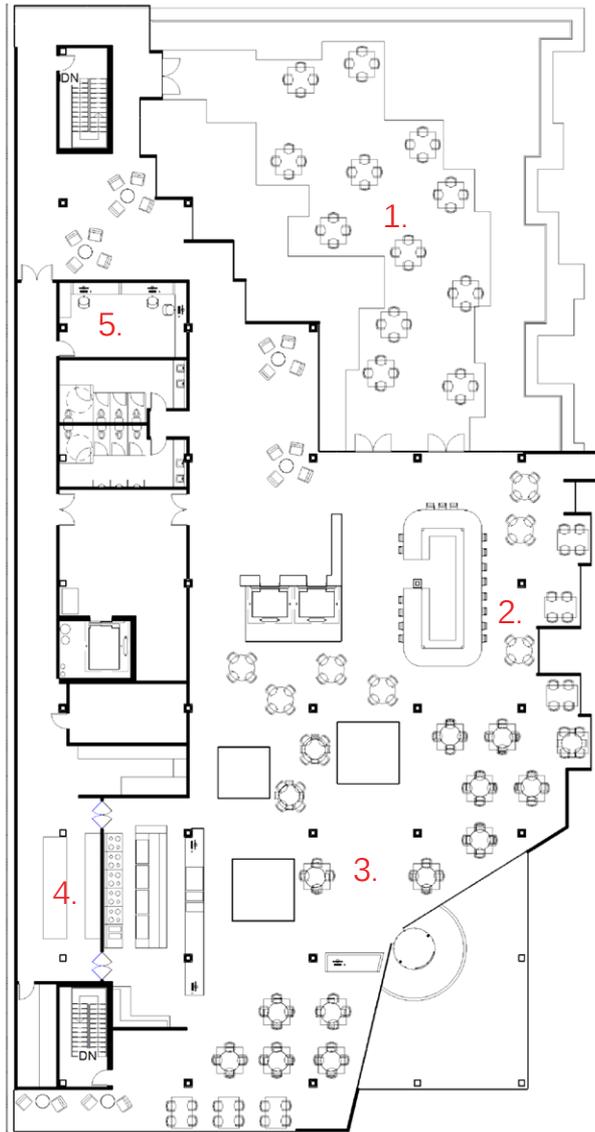


Media
- Computer Clusters

Study
- Study Nooks
- Private Nooks
- Study Area

Figure 9.2

4th Floor Plan



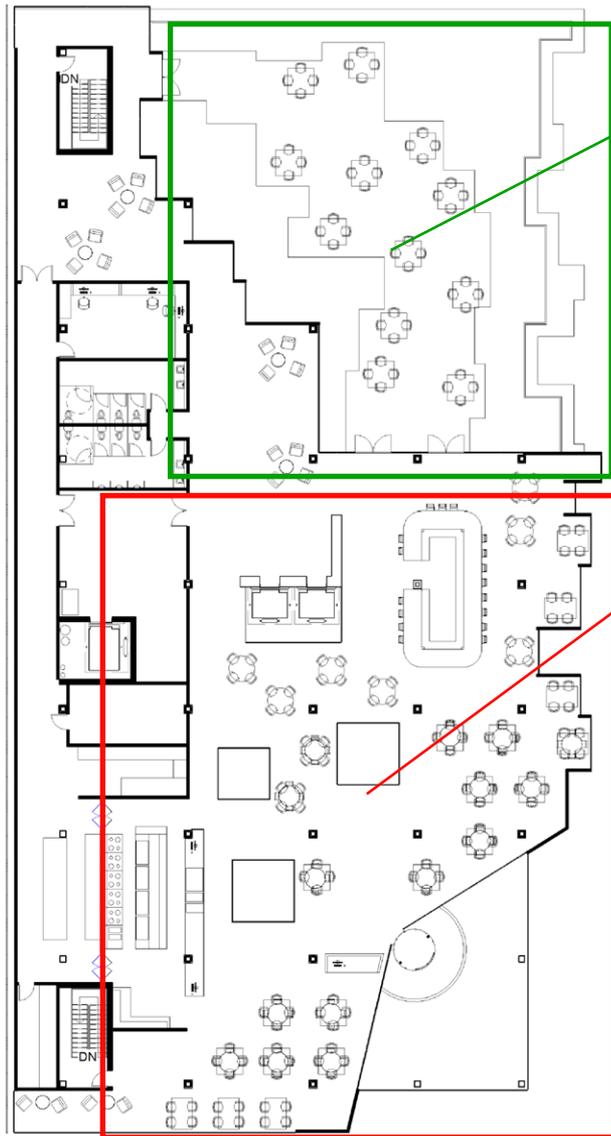
Legend 4th Floor:

- 1. Outdoor Roof Lounge Space
- 2. Bar Area
- 3. Dining Area
- 4. Kitchen
Food Prep
Grills
Liquor Storage
- 5. Office Space



Figure 9.3

Restaurant/Bar and Green Space



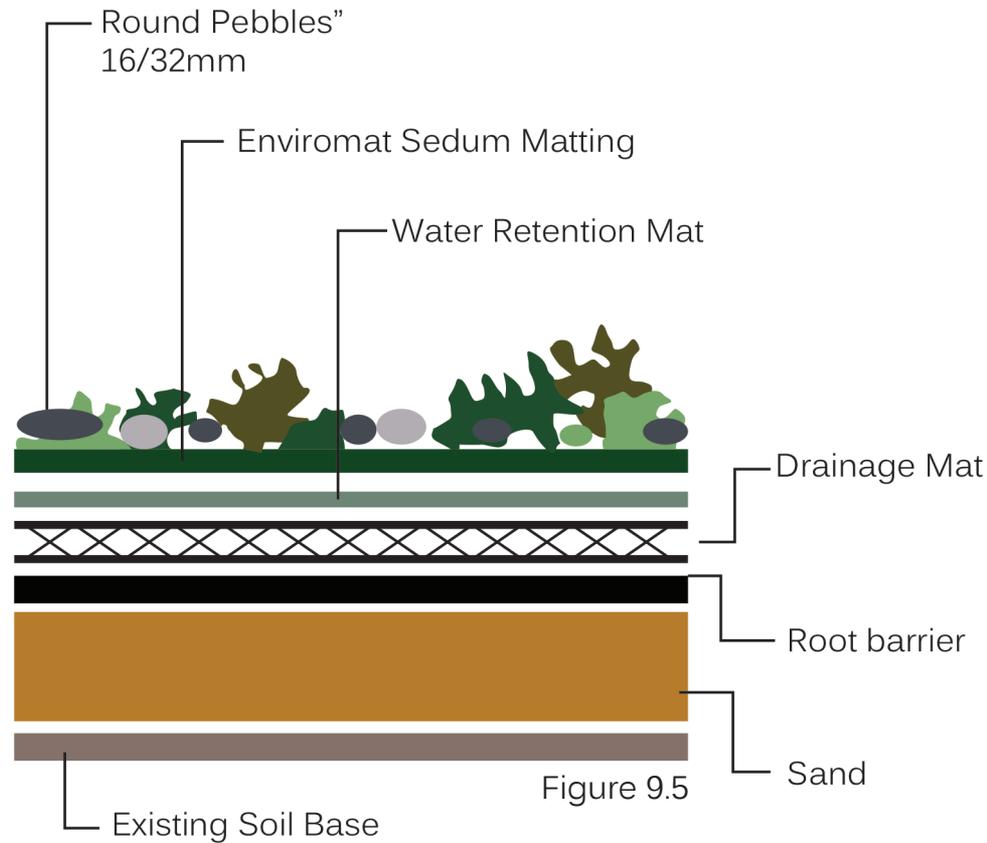
Green Space

The green space is made of Sedums. This is a more light-weight but still effective green space environment. The outdoor space will provide outdoor seating for the restaurant.

Restaurant/Bar

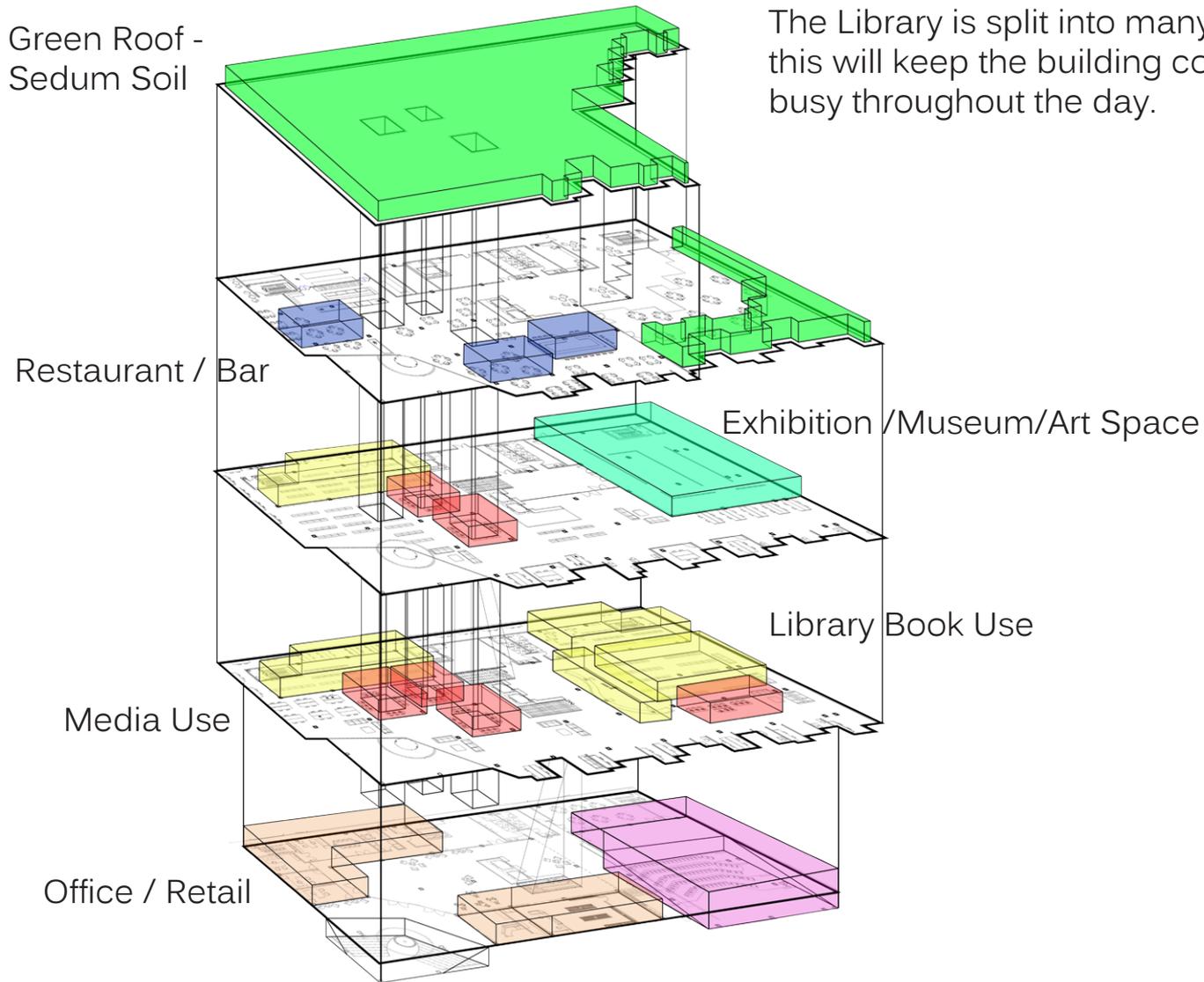
The Restaurant and Bar will be open from 3 PM till 12 PM Monday - Saturday, Sunday 5 PM till 10 PM. With these hours, the library should be slowing down as the night crowd starts to pick up.

Sedum Diagram



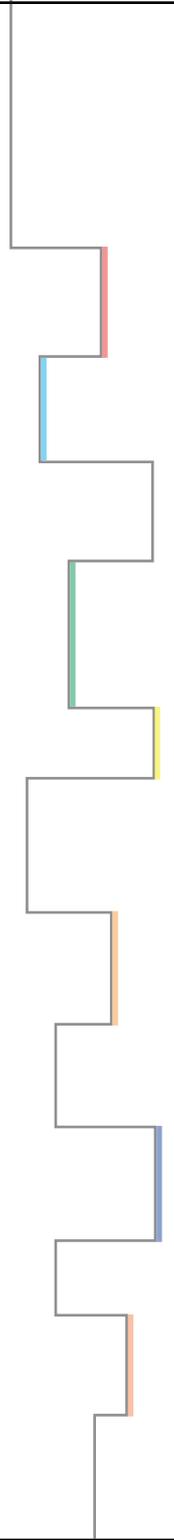
There are 400 species of leaf succulent sedums in North Hemisphere. These plants have water storing leaves allowing for less soil, and ultimately less wight.

Layers and Multi-Use



The Library is split into many sections, this will keep the building constantly busy throughout the day.

Figure 9.6



Sun Shading Device

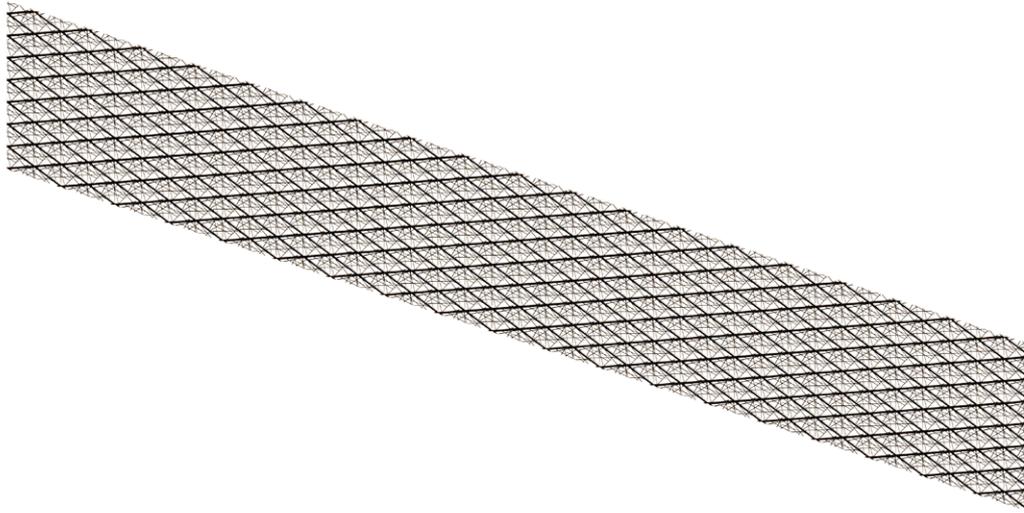
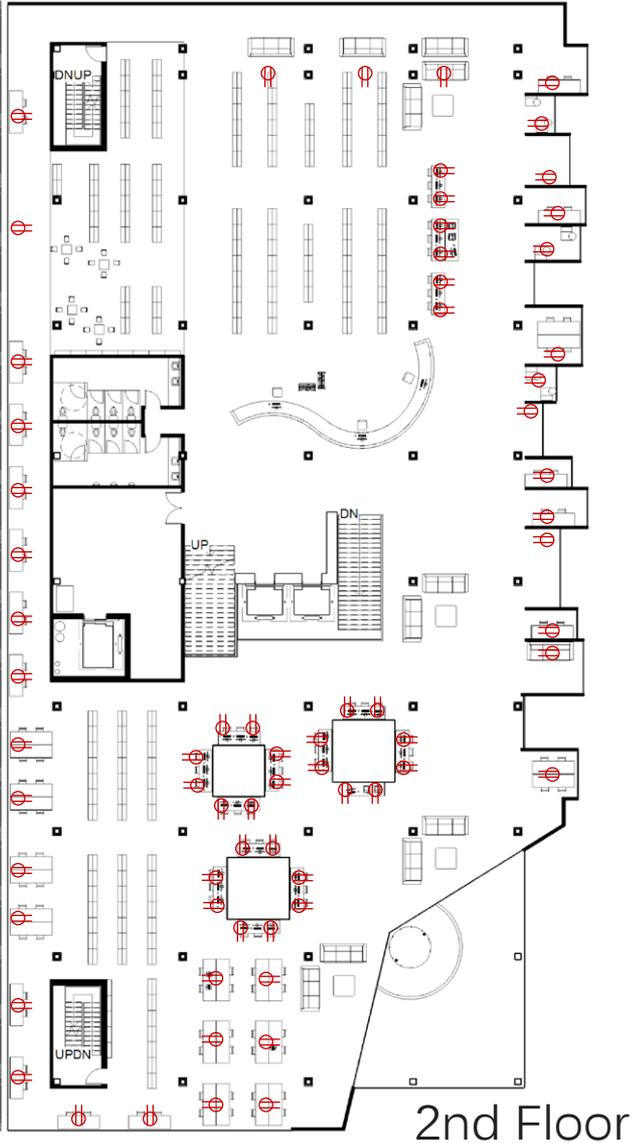


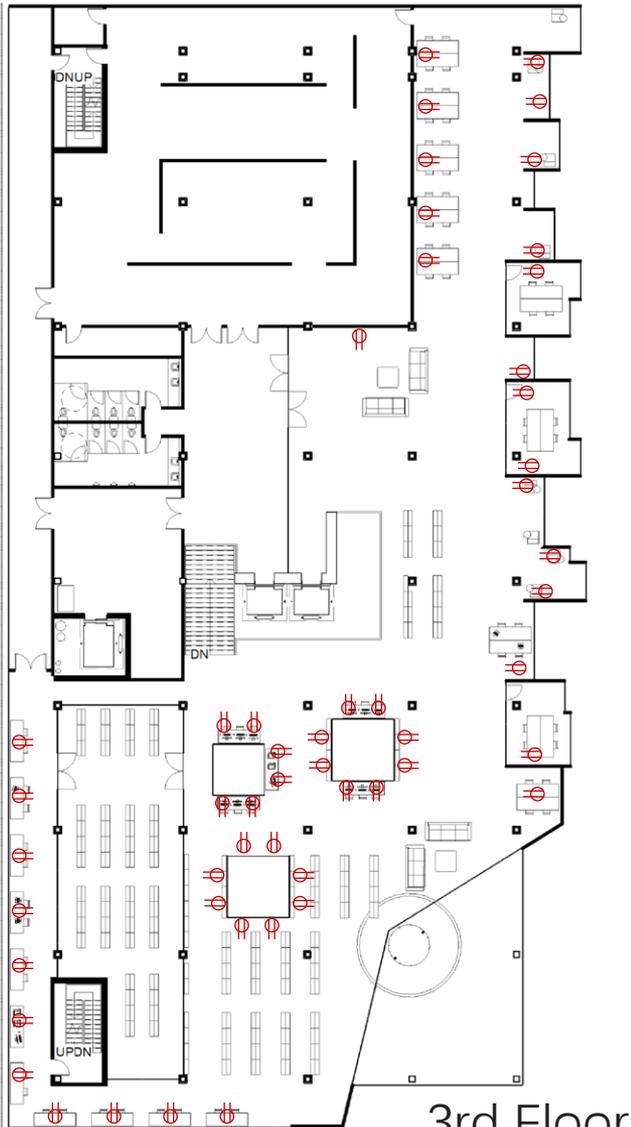
Figure 9.7

The Sun Shading device is designed to cast shadows resembling branches. This will allow the user/ guest to feel a more natural environment around them.

Electrical Diagram



2nd Floor



3rd Floor

Figure 9.9



Service

All services are on the west side of the building. This side has minimal views so it is an optimal location.

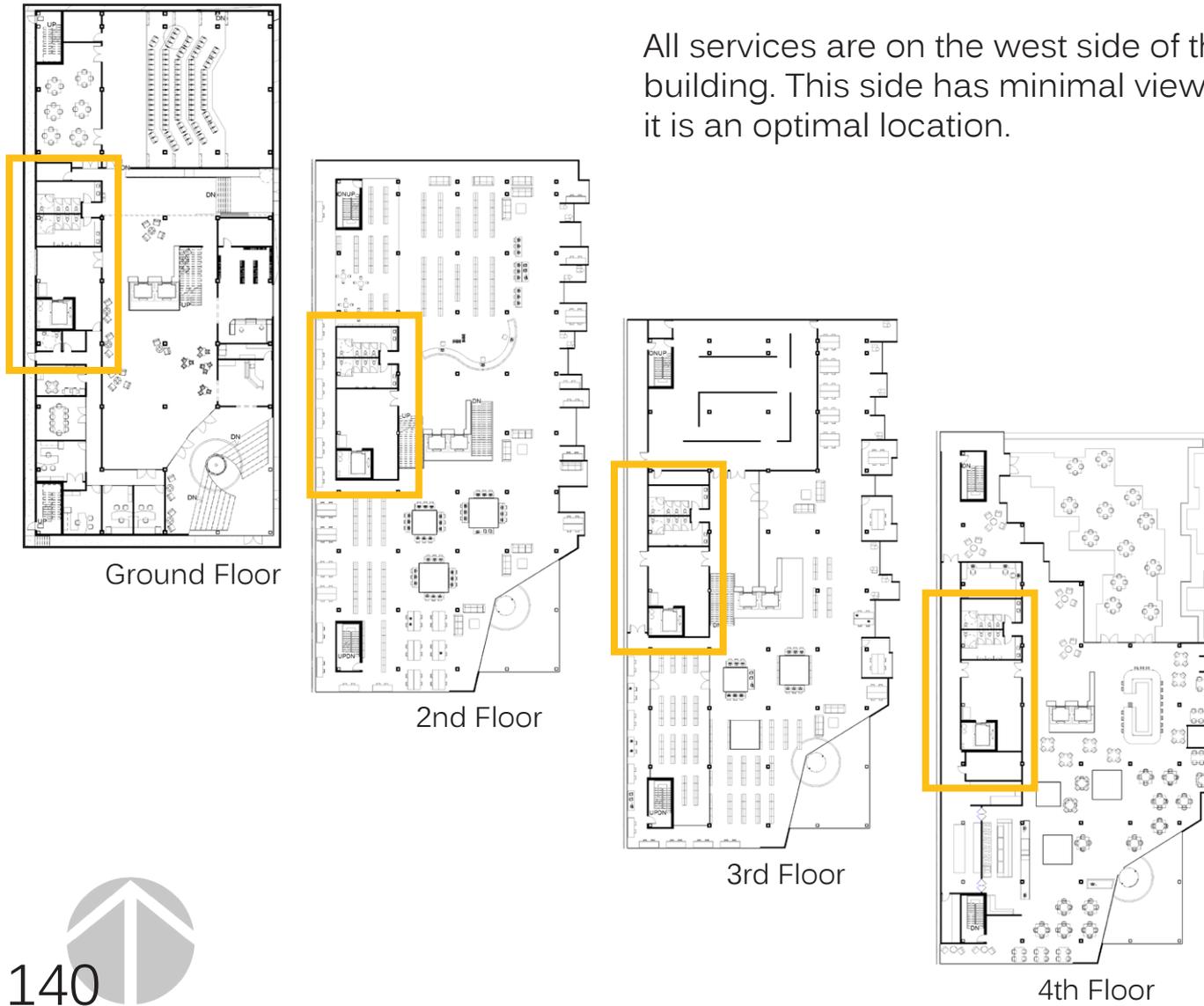


Figure 10.1

HVAC Diagram

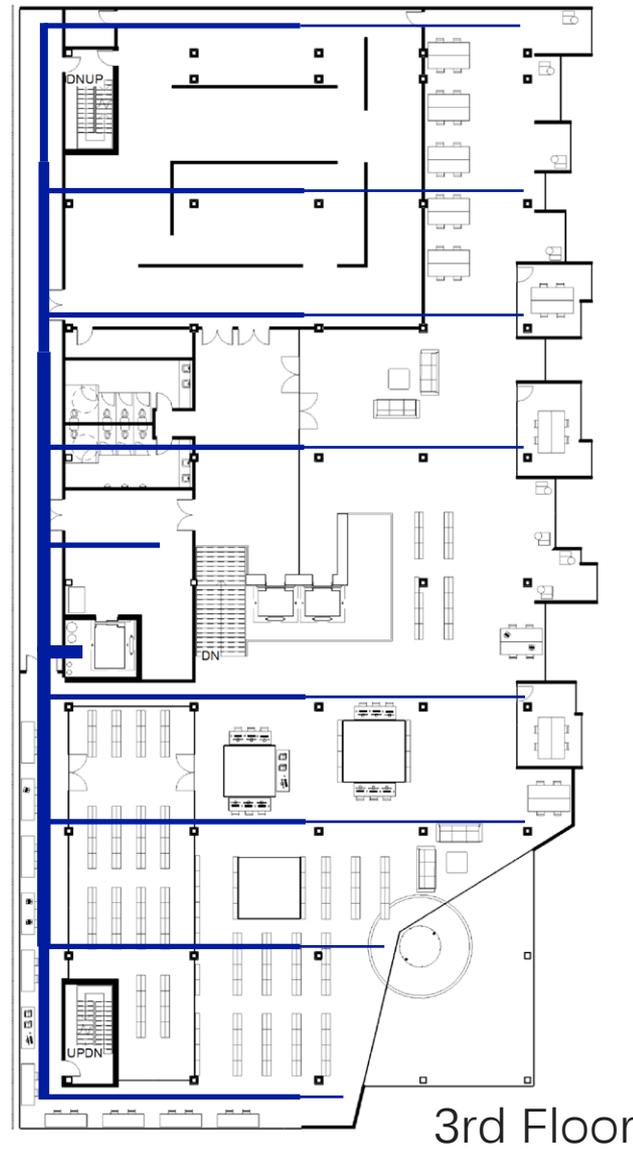
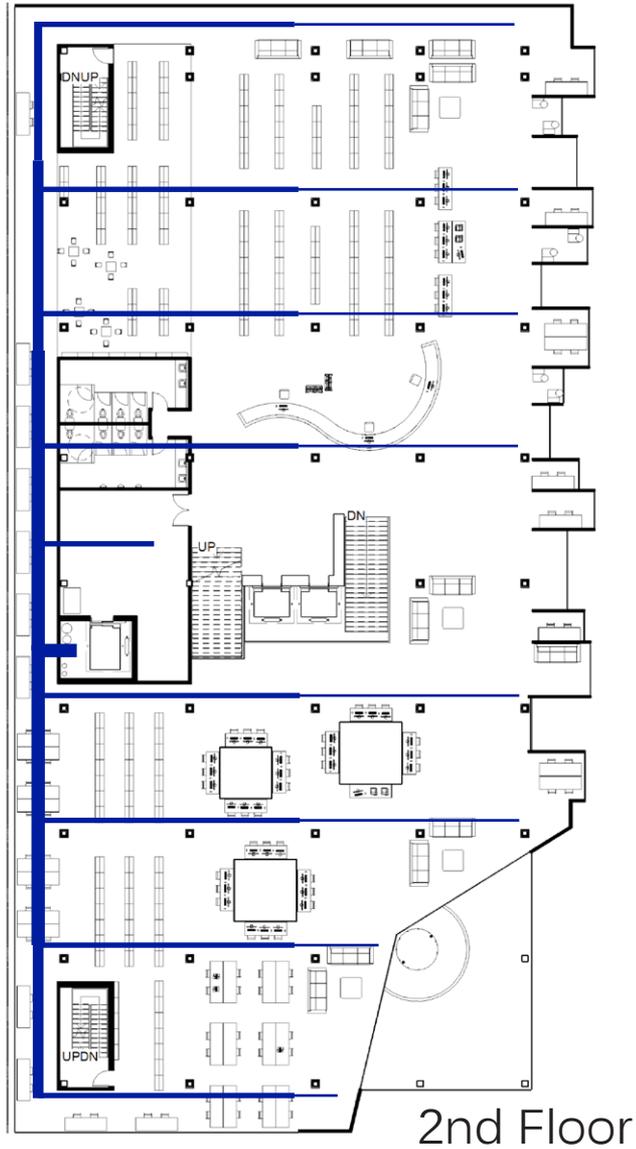


Figure 10.2

Elevations and Sections

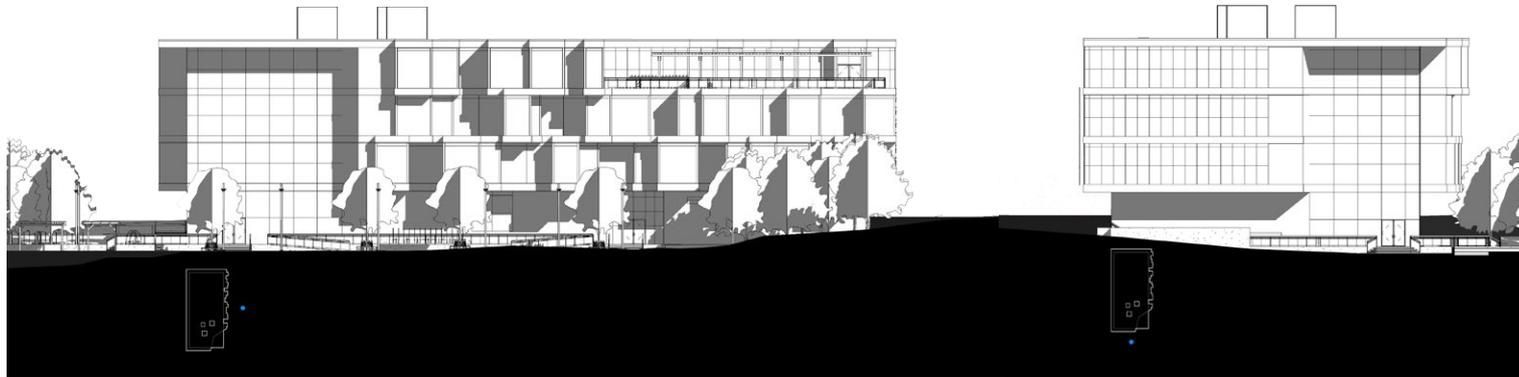


Figure 10.3

South Perspective



Figure 10.4

Southeast Perspective Day



Figure 10.5

Southeast Perspective Night



Figure 10.6



Figure 10.7

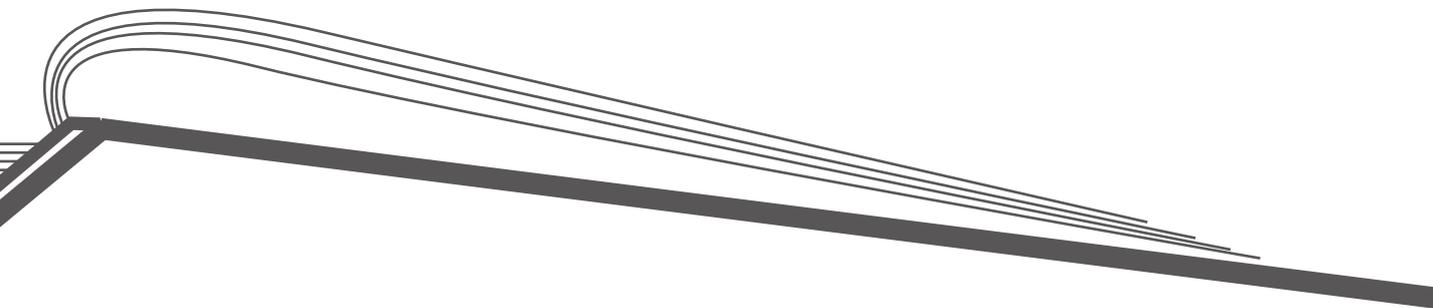
Project Installation



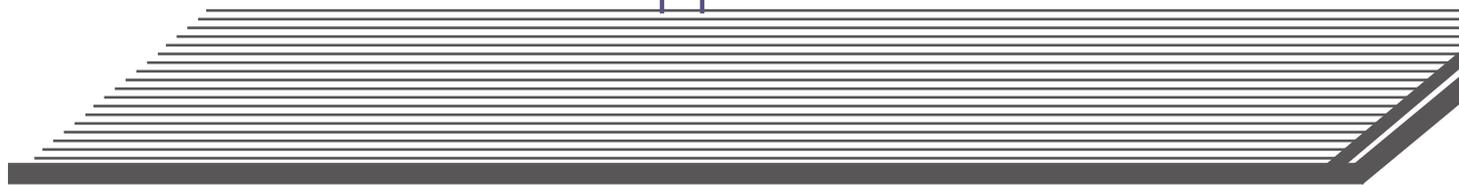
Figure 10.8



Figure 10.9



Appendix



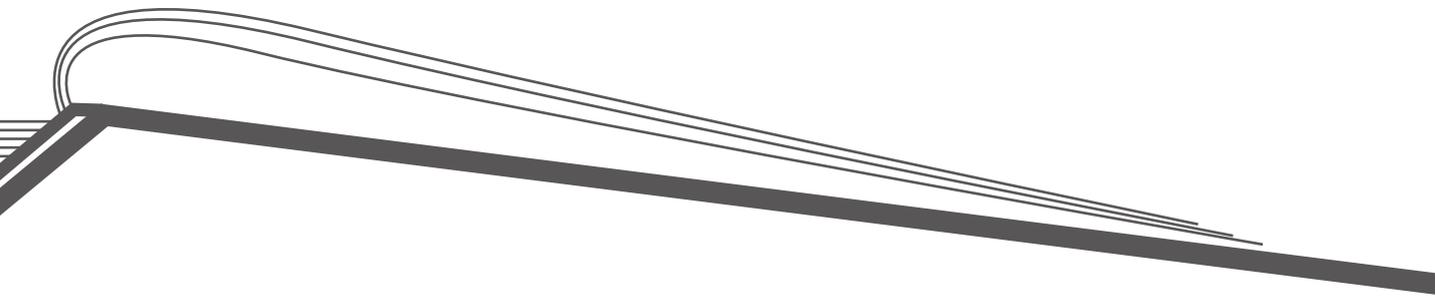
<http://www.archdaily.com/279543/daegu-gosan-public-library-competition-entry-various-architects/>

<http://www.archdaily.com/278300/shih-chien-university-gymnasium-and-library-artech-architects/>

<http://www.archdaily.com/81114/library-restaurant-multifunctional-space-bob361-architects/>

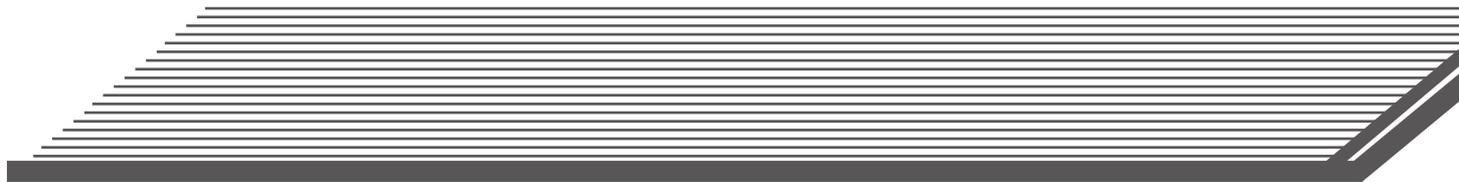
<http://www.archdaily.com/102511/grand-library-of-quebec-patkau-architects-with-croft-pelletier-and-menkes-shooner-dagenais-architectes-associés/>

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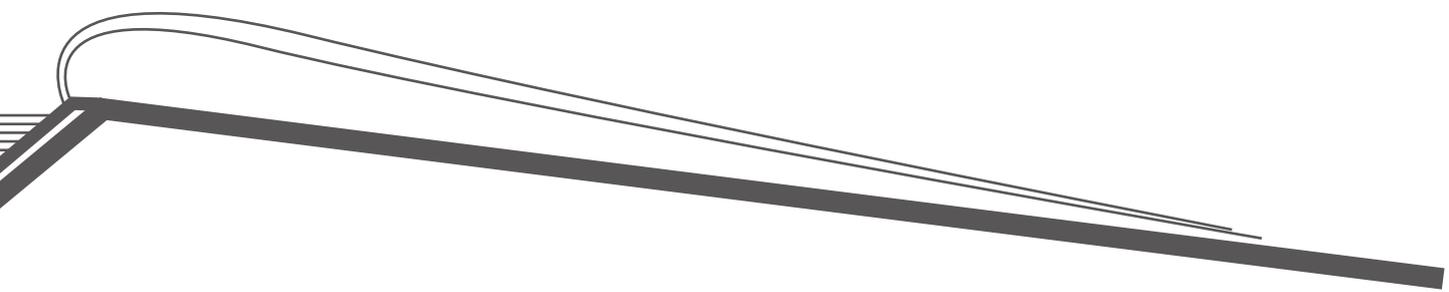


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Reference List

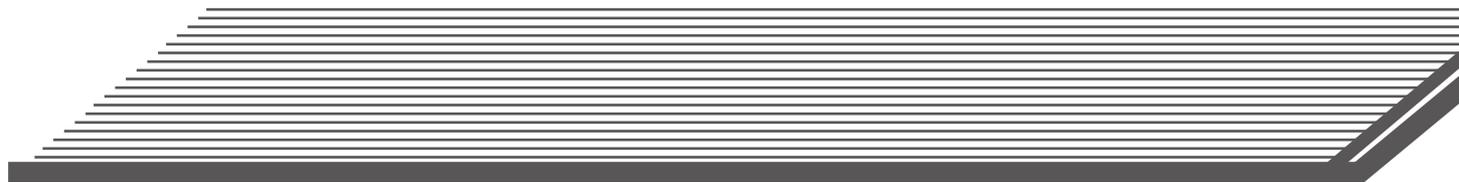


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North Dakota State University opens doors to
many places.

