Spaces that encourage Communication: Design for a Public Library

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Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University, in partial fulfillment of the requirements for the degree of

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in
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ABSTRACT

Public libraries have changed tremendously. Libraries used to be places with an organized collection of documents that people would visit and read quietly. However, with the development of digital technology, people are now able to conveniently access the same information from home or elsewhere. Instead of a storehouse of knowledge, a library is now a community center. Preschoolers attend story time with their parents and adults come with friends for entertainment and events. Nowadays, libraries have become a gathering place for social, leisure, self-education and learning activities.

In this thesis, I am exploring how to design spaces which can encourage communication between people. According to Jan Gehl's book, Cities for People, watching, listening and experiencing others is the beginning of social communication. After studying precedents, I summarized basic space prototypes which promote communication and then applied them to the design of a large urban public library on a site in Arlington, Virginia. By translating the different prototypes into the design, the resulting building provides spaces with different scales, levels of privacy and qualities to fulfill a wide range of individual needs.

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GENERAL AUDIENCE ABSTRACT

Public libraries have changed tremendously. Libraries used to be places with an organized collection of documents that people would visit and read quietly. However, with the development of digital technology, people are now able to conveniently access the same information from home or elsewhere. Instead of a storehouse of knowledge, a library is now a community center. Preschoolers attend story time with their parents and adults come with friends for entertainment and events. Nowadays, libraries have become a gathering place for social, leisure, self-education and learning activities.

In this thesis, I am exploring how to design spaces which can encourage communication between people. According to Jan Gehl's book, Cities for People, watching, listening and experiencing others is the beginning of social communication. After studying precedents, I summarized basic space prototypes which promote communication and then applied them to the design of a large urban public library on a site in Arlington, Virginia. By translating the different prototypes into the design, the resulting building provides spaces with different scales, levels of privacy and qualities to fulfill a wide range of individual needs.

ACKNOWLEDGEMENTS

To my family: Thank you for your unconditional support and love.

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To my friends I've meet in WAAC: Thank you for helping me along with my thinking and growth

CONTENTS

Chapter One - Research

The research was focused on understanding the changing role of libraries across history and comprehending its role in the contemporary age. The lighting, the spatial quality, the materiality of the building, the activities of the people, the furniture layout were all important to me. This study helped inform the design at the later stage. Studying and classifying the different spaces and thereby forming a prototype of spaces that encourage communication helped generate the concept for the building.

COMPARISON

Criteria	Old Library	Current/Digital Age Library
concept of library	silent place for studying and working	active place for retrieving information and socializing with other users
space in the library	much closed space,furniture close to each other	a lot of open space, space to move around between furniture
rooms in the library	big silent reading rooms, seperated computer rooms	big active reading rooms to use personal laptops with free Wi-fi internet access, and socialize with other users; separated silent reading rooms; additional computers in ther library; special rooms for group-works
lighting	dark reading rooms with little lamps and extra lamps on reading desks	bright reading rooms with a lot of light and extra lamps on reading desks. Design features where appropriate are the use of atria and skylights and using glass windows for maximizing the use of natural lightings
colors	dark colours(brown,gray,beige,gold,deep red,deep green)	bright colous (orange,blue,yellow,green,white,silver)
furniture material	heavy wood, chipboard	plastic,textiles
desks	heavy,unmovable, made of wood	light, easy to move, made from different materials
chairs	heavy and hard wooden chairs, may be with leather seats	easy portable and comfortable chairs with sofe padding
shelving	big and heavy shelves, very tall ones with additional ladders	easy-to-reach shelves, movable shelves, automatic shelves


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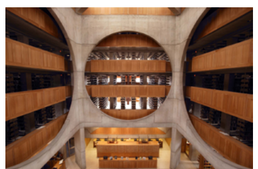
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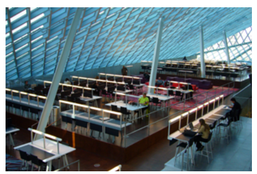
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MATERIAL STUDY

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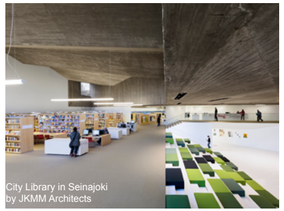

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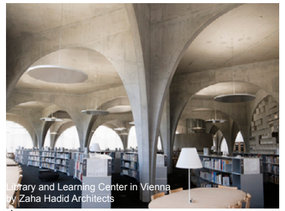

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When choosing materials, architects not only consider the material performance related characterists, but also take into account the user experience and sensory stimulation. Curtain wall is always used in public buildings to provide visual connection to the activities happening inside. As a cold and inhuman material, concrete can be used to create peaceful ambience. Wood and fabirc are warm materials which are used in the places where people may touch and have a contact with to give people an intimate feeling.

"...Social activities include all types of communication between people in city space and require the presence of other people. ..see and hear arctivities are the largest category of social contact...The issue is important because these passive see and hear contacts provide the background and springboard for the other forms of contact. By watching, listening and experiencing others, we gather information about people and the society around us. It is a start."

- Jan Gehl (*Cities for People*, p 23)

PROTOTYPES OF SPACE ENCOURAGING COMMUNICATION

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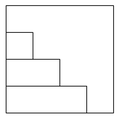
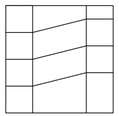
Terrace

The Gund Hall of the Graduate School of Design, Harvard University is designed by Australian architect John Andrews. The terraced studio allows for an open working environment. There is a high level of visual contact and it fosters interaction.



Atrium

In Guggenheim Museum, a master piece designed by Frank Lloyd Wright ,there is an atrium surrounded by a continous ramp. Through this atrium, people from different floors can see what is happening around and this encourages a visual communication with each other.



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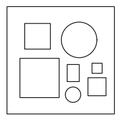
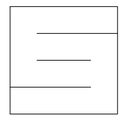
Juxtaposition

The Museum of Contemporary Art was designed by SANAA, a Tokyo based firm founded by Kazuyo Sejima and Ryue Nishizawa. The exhibition spaces are of different volumes. The people circulate around the exhibition areas. The combination of the opaque and transparent walls within the building ensure privacy and a good amount of visual connection that promotes interaction.



Void

Located in Tokyo, Shibaura House is a building designed by SANAA with transparent external walls and steel structure. By cutting out void space in different floors around building's periphery, spaces in different levels are connected together.



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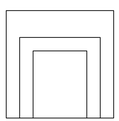
Threshhold

There are three types of spaces in this house, the indoor, the outdoor garden and the space in between.This threshhold offers a sense of privacy.



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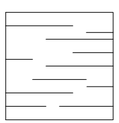
Split Level

House NA is designed for a young couple by Sou Fujimoto. The house has many different levels which are connected by stairs or ladders. There is an activity in each level. Thus the rooms are created by the levels rather than with walls.



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Shaft

Sendai Mediatheque, designed by Toyo Ito, is located in the heart of the city of Sendai. The slabs are supported by thirteen vertical steel lattice columns which function as light shafts. These columns stretch from ground floor to the roof to create shafts connecting different floors physically and visually.

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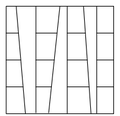
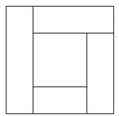
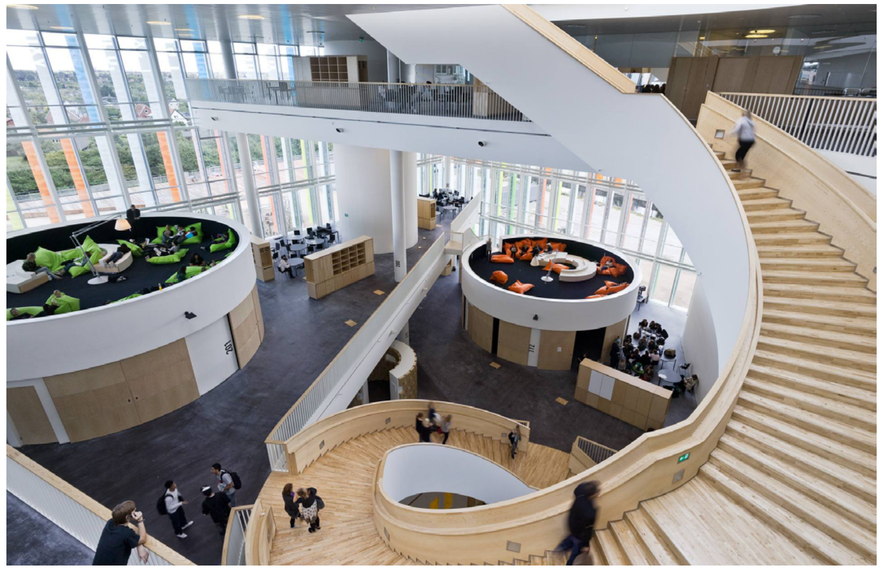


Rotation

3XN is an architecture firm based on Copenhagen. They designed a dynamic interior space for ØRESTAD college by rotating floors as they are ascending. Floors are connected by the circular stairs so that people will have an interaction with the active space when they are moving from lower to upper level. Also, this type of arrangement provides more opportunity for eye-to-eye connectoin.





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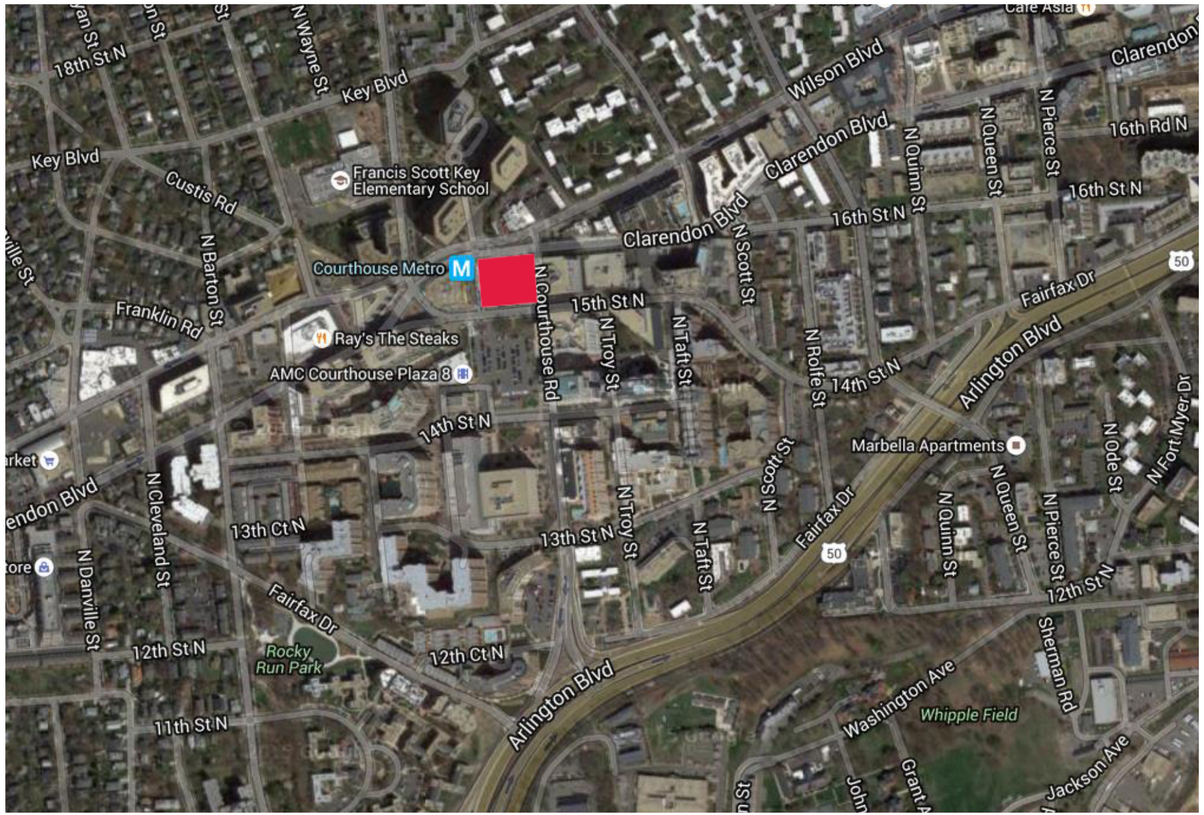
Chapter Two - Process

In this period, I started to learn about the site and used physical models to help aid the design process.



Arlington County is the second-largest principal city of the Washington metropolitan area. The county is situated in Northern Virginia on the south bank of the Potomac RIver. The site is right next to Courthouse metro station and located at the center of main street in Arlington. Several high-rise buildings, which are blocking the view of the site, lie to the north, east, southwest and southeast of the site. To the south is a huge parking lot which is serving government employers on weekdays and open to public on weekend. To the northeast is residential area with low builidngs and greens. The metro station and several bus station make this site accessable to residents living in Arlington and even people from Washington DC and other counties. Within walking distance, there are several education institutions, such as Strayer University Arlington Campus, Francis Scott Key Elementary School, Arlington Science Focus Elementary School and so on. The library will also function as an activity center for students there. This area is also a vivid commercial district with movie theatre, shops and restaurants, which will bring people into the library.


office building


restaurant


Strayer University

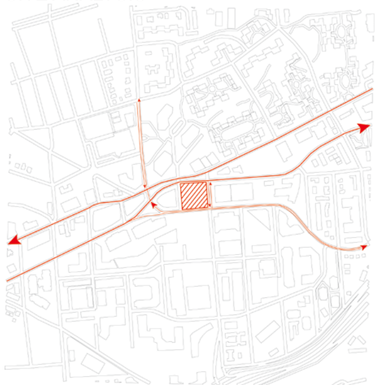

office building


office building

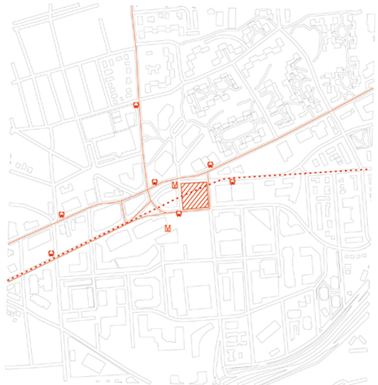

parking lot


Arlington County Jail

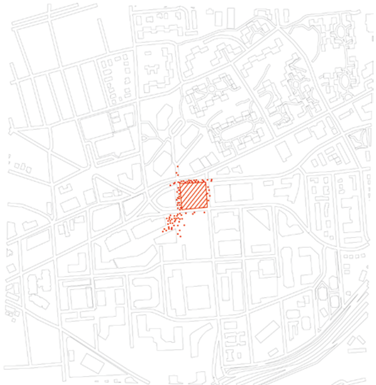
SITE ANALYSIS



TRAFFIC

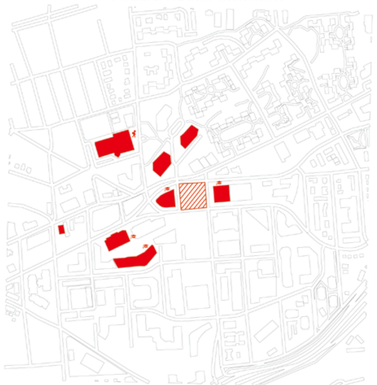


PUBLIC TRANSPORTATION

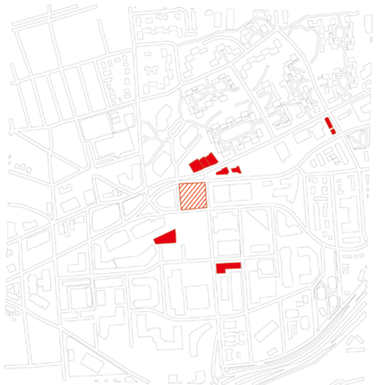


PASSANGER FLOW

BICYCLE



EDUCATION INSTITUTION



RETAIL AND ENTERTAINMENT

SOLAR STUDY

SUMMER SOLSTICE

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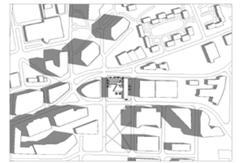

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WINTER SOLSTICE

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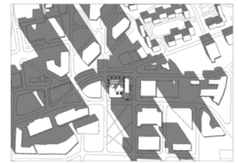

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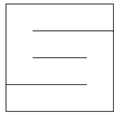
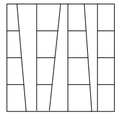
Study Model Applying Prototypes

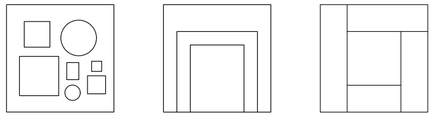
This is the study model I made to explore how to translate spatial prototypes into architectural language. In this model, the space is divided into several parts which have various height and scale. Some spaces are more intimate while some spaces are more public.

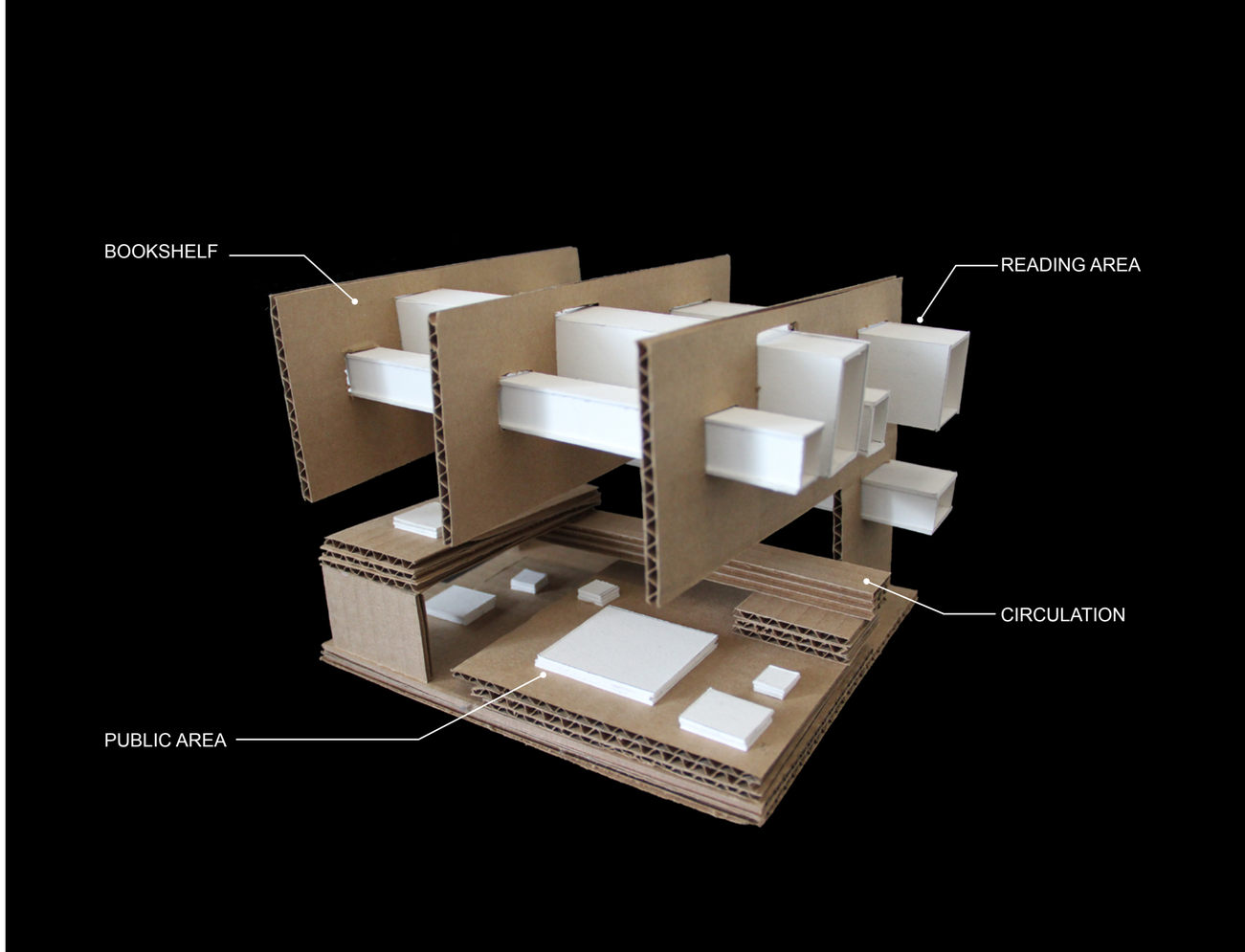




Scheme One

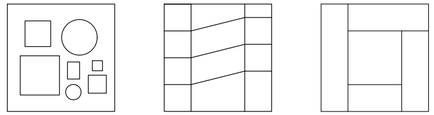
In this scheme, I tried to find out a new way to define the public and the private spaces. These several white horizontal volumes function as reading areas. They supported by three huge concrete walls which can be designed as bookshelves. Thus there are some light shafts inbetween.
Beneath the reading area and bookshelf is a public area. In this area, I tried to combine the circulation and public space to create a dynamic atmosphere. The public space is seperated into different platforms with some small "islands" above. These islands become the center for this space which is more public and the rest of the space is more private. As a result, I can create a spatial "rhythm" between the public and the private.
In this building, people have their own private space to read but still have a visual connecton with the public space beneath.





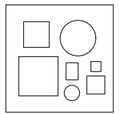
Scheme Two

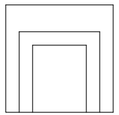
In this scheme, I seperated the building into two worlds, world on the ground and the world in the sky, to create public and private areas. Between them is a garden fuctioning as buffer space with skylights to attract people to visit the space above. The basement floor is connected to metro station through a tunnel. On the ground floor, the southwestern corner is the main entrance accepting people from north and south. There are three types of spaces in this building-the public space open to the park which used to be a parking lot, a semi-public space and a private work area.
The big volume in the sky is supported by four big columns at the corners. Within the big volume are spaces with different light, scale and materials enhancing the experience for the people.

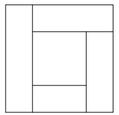


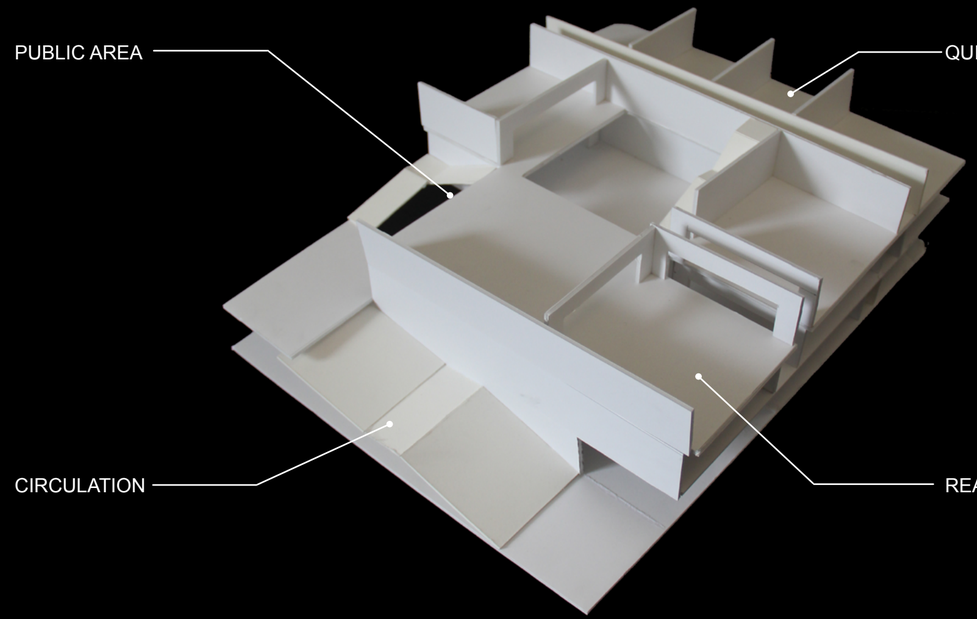
Scheme Three

In my third scheme I am exploring how to combine structure, space and circulation together. I define different public space in different position and then use circulation to connect them together. Around the public space are the reading areas defined by concrete frames which is also the structure of the buidling.



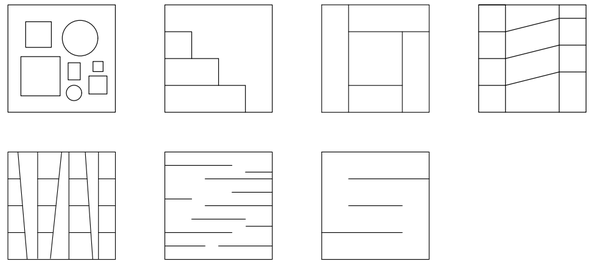


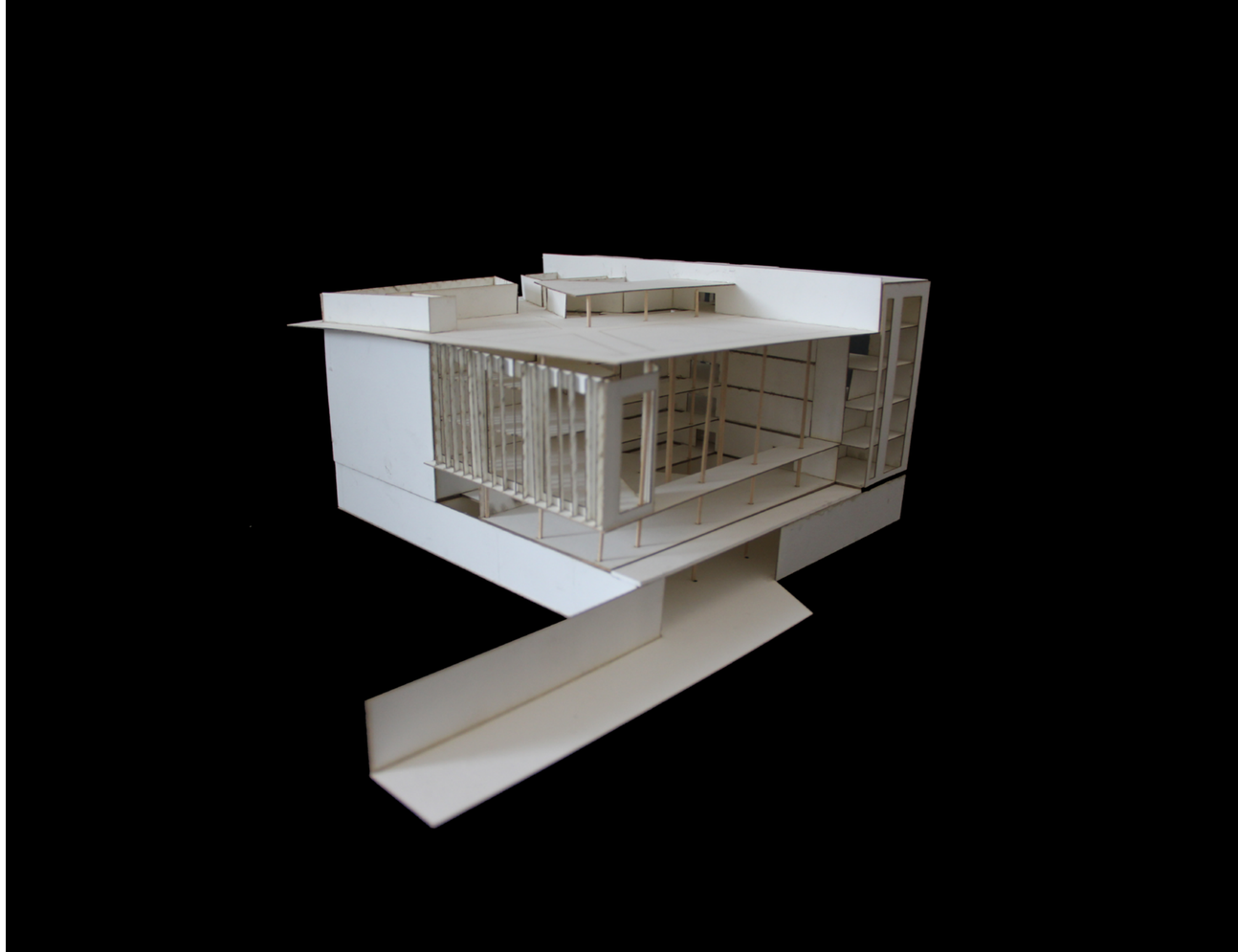




Final Scheme

In my final scheme, I combine my research and site together. In order to promote the spatial quality around the site, I replace the parking lot with a public park and design a new parking lot underneath. Considering the order of the building , I draw a line which is pointing to the residential area to the northeast of the site. By doing this, a public area open to the park is also defined. Then I divide the building into four parts, public area, semi-public area, semi-private area and private area.



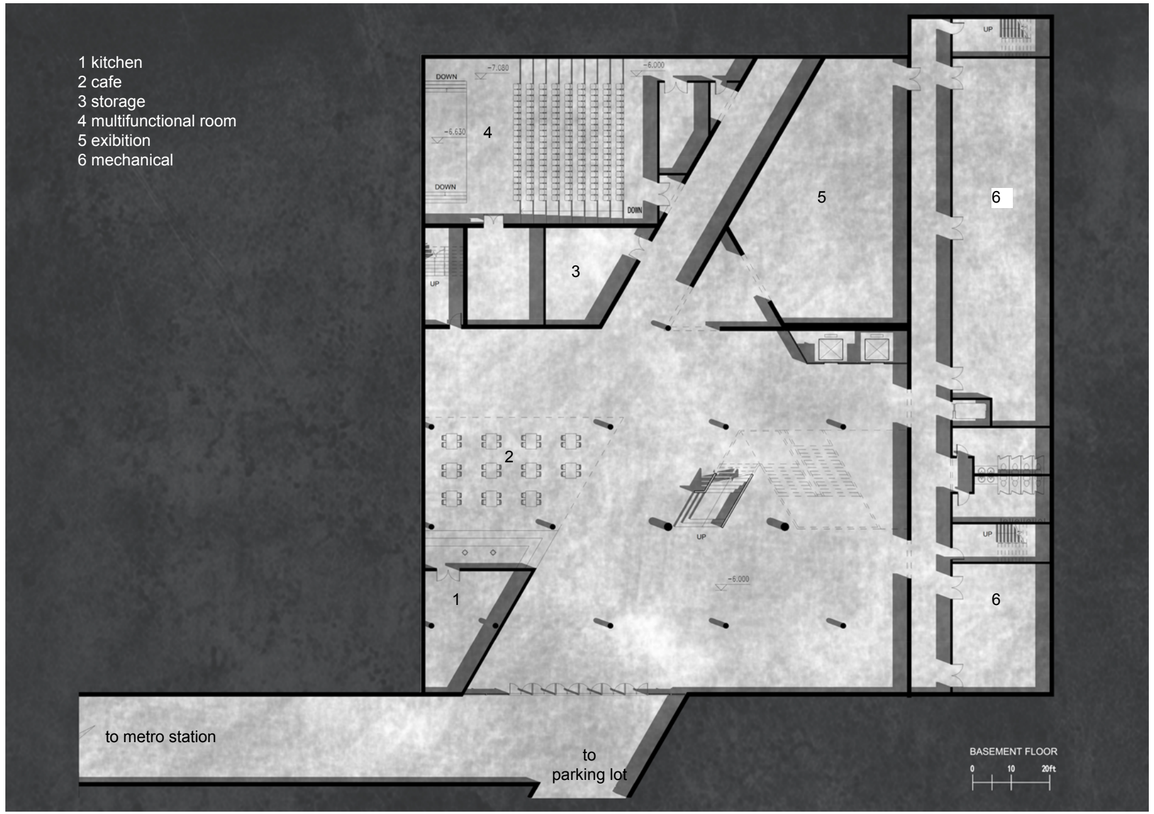


Chapter Three - Presentation

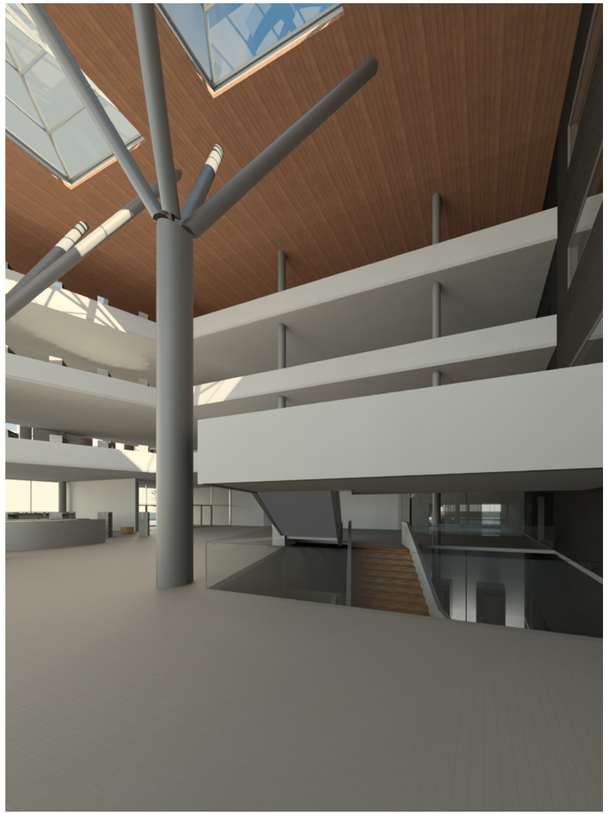
Site Plan

On the basement floor, people will arrive this building from metro station and parking lot through the two tunnels. This floor contains exibition area, cafe, multifunctional auditorium and mechanical area. A v-shaped stair is leading people to the ground floor.

Basement Floor

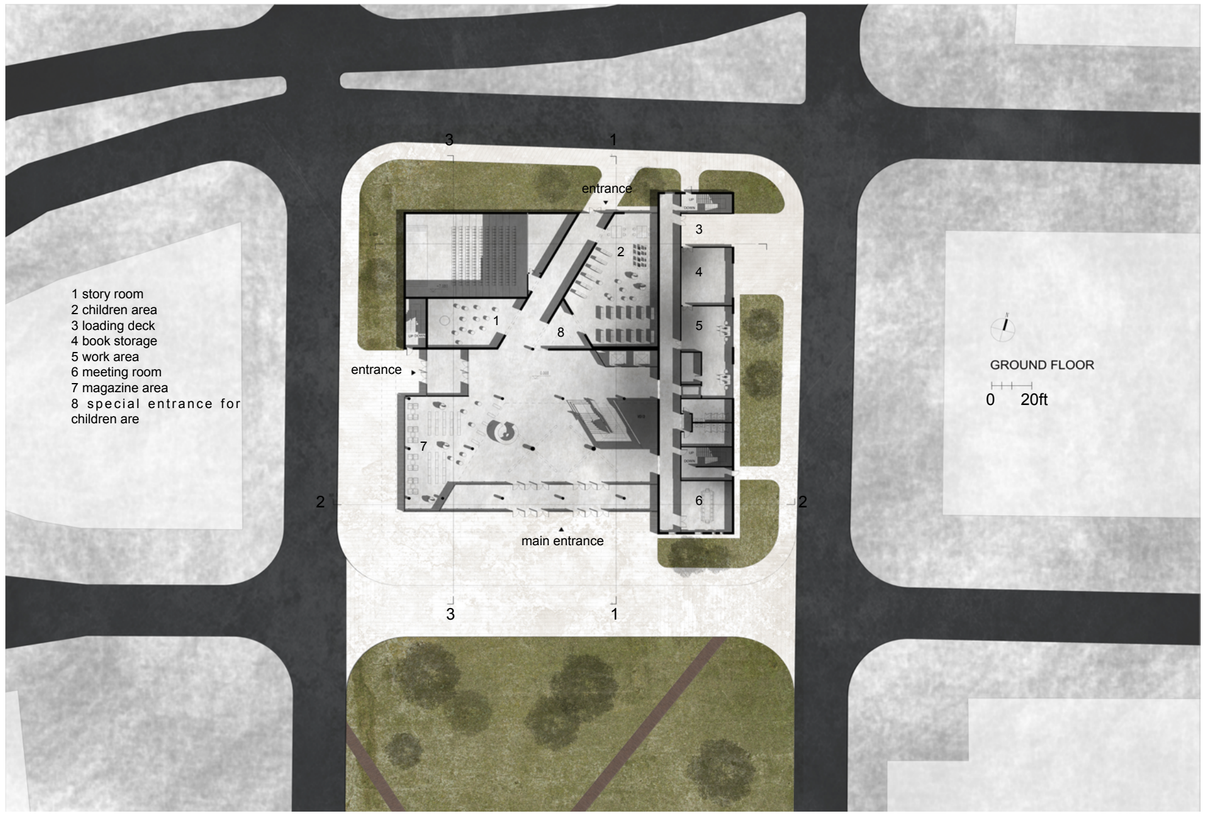


Main Entrance



The old parking lot is replaced with a public park to promote the quality of the environment. The pavement of the site is extending to the park to reinforce the relationship between the park and the triangle public area inside the builidng. The main entrance is on the southern side receiving people from metro station and movie theatre. The entrance on the western side is receiving people from another metro station at the northeastern corner of Strayer University. Besides, there is a loading deck and an entrance for employees on the eastern side. The Magazine area is at the corner near to the entrance which is accessable to passengers who may just want to have some rest and read some newspaper in a noisy and public area. There is a place for children on the first floor and this attracts other people.

Ground Floor Plan

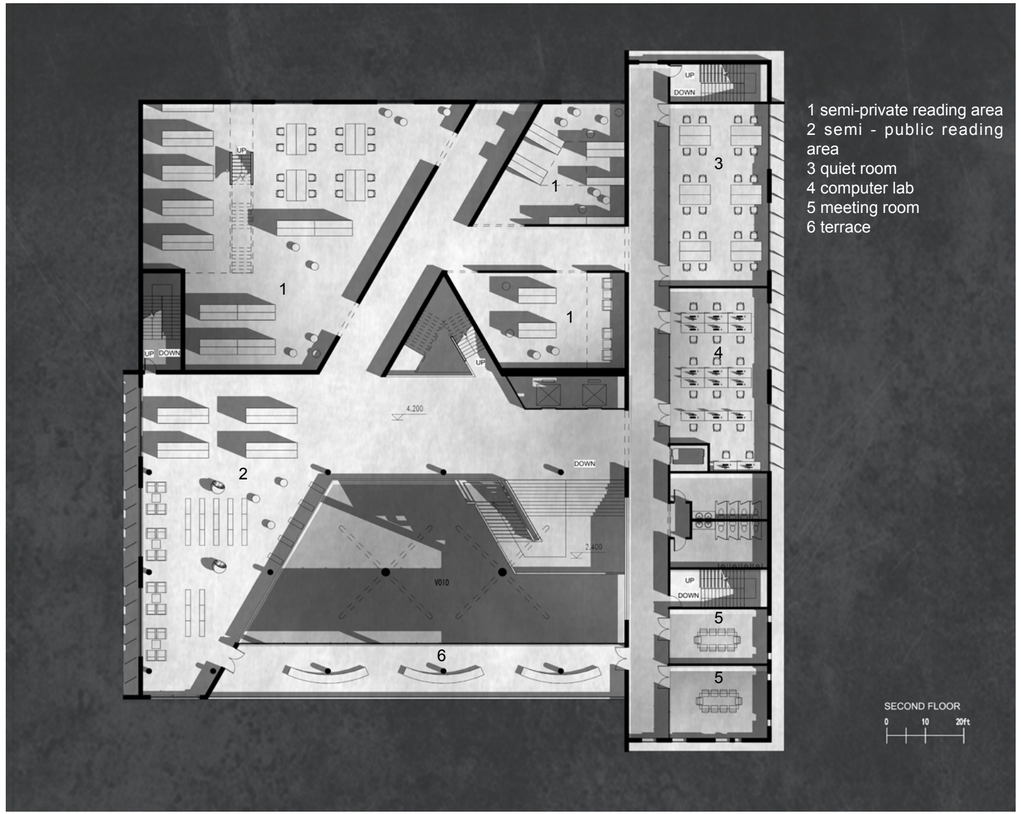


Stairs

In modern library architecture, stair is not only functioning as circulation, but also as space for some activities such as reading. Circulation area is the place where people meet each other and have visual and physical contact. If we combine circulation space with reading activity, we can create a different experience for reader, an experience that you are surrounded by sound, light and flow of people. The rendering below shows the special triangle stair going from second floor to fifth floor. It is an intimate space with small scale which is different from the big stair. People's view is block by the solid wall for a while and it seems that peole are being lead to a special area.

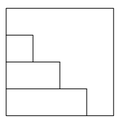
Second Floor

People reach second floor through the big stair which is also working as reading area. In front of them is a special thrangle stair which is leading people to the uppper floors. On the right side is a opening to quiet area which contains computer lab, quiet reading room and meeting rooms. When people move to the left side they will reach a platform where they can choose to enter the public reading area or a path pointing to a residential area with green areas two blocks away from the site. On the southern side of the building is an exterior terrace with furnitures for reading.

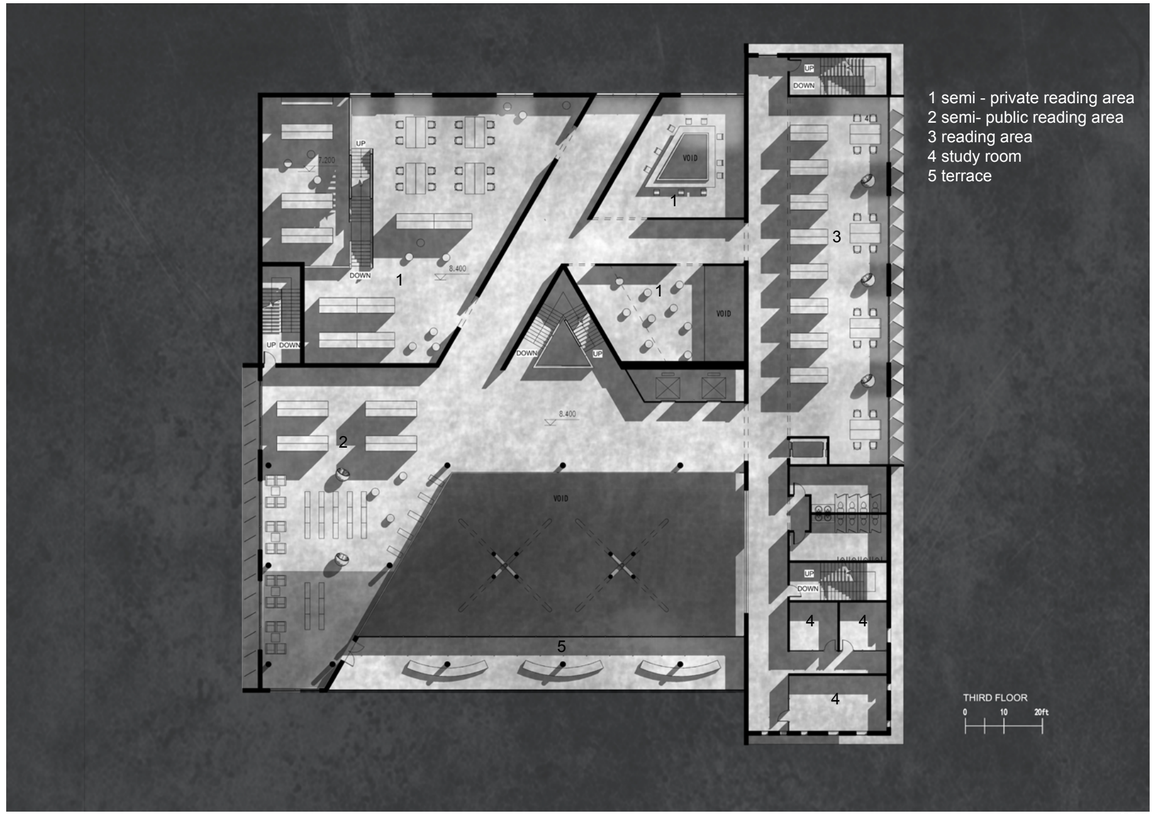


Public Reading Area

Through the special triangle stair people can arrive the third floor. At the southwestern corner is a double height public reading area which has visual connection to the lobby and the terrace on the fourth floor. On the northern side are three semi-private volumes having differnet spatial prototypes.



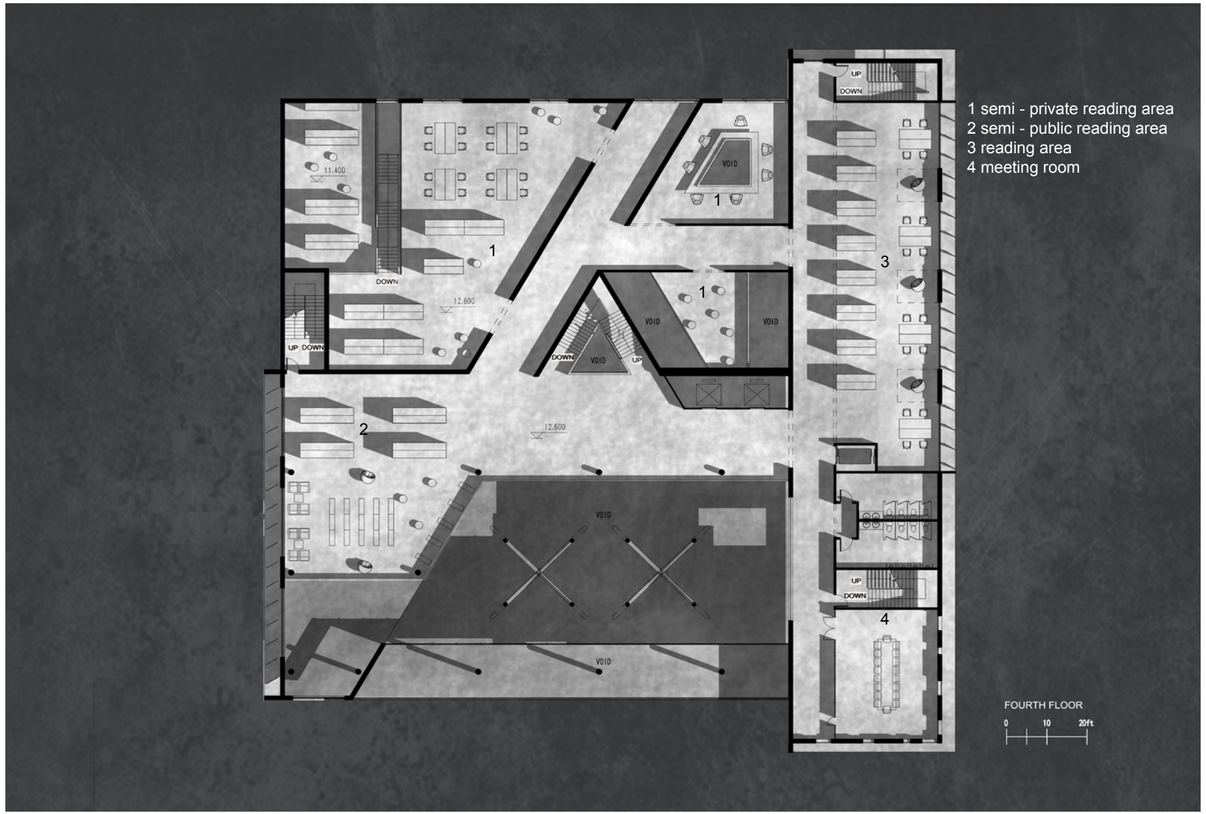
Third Floor Plan



"Split-Level" Reading Area

By applying the "spili-level" concept into this space, I create a view where different activities overlap together. The space is not seperated by floors anymore. With the sta ir stre tchi n g from second floor to fourth floor and floors which are four feet lower, the reading space in this volume is an integral.

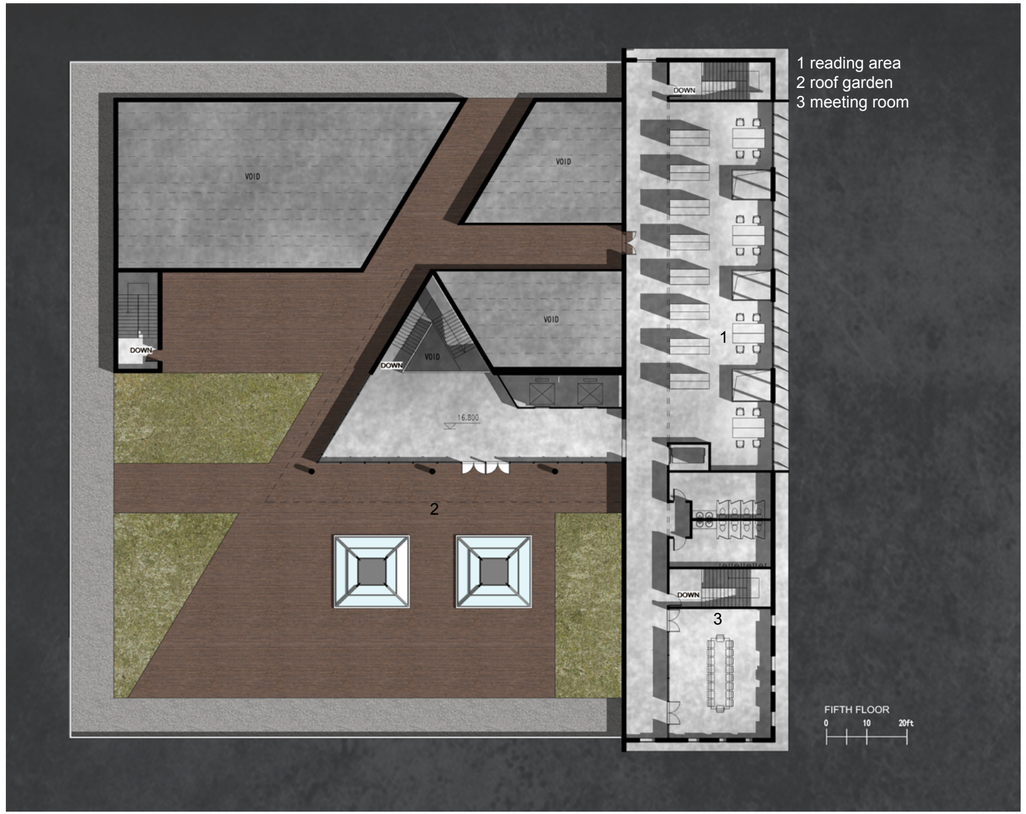
Fourth Floor Plan



Quiet Reading Area on Fourth Floor

Fifth floor is comprised of a roof garden, quiet reading area and meeting room. From the skylight in the roof garden, people can see the activities underneath. Gray gravels are used for the periphery of the garden. The rest of the garden is paved with wooden panel. By using different materials, roof garden are seperated into two areas for different activities.

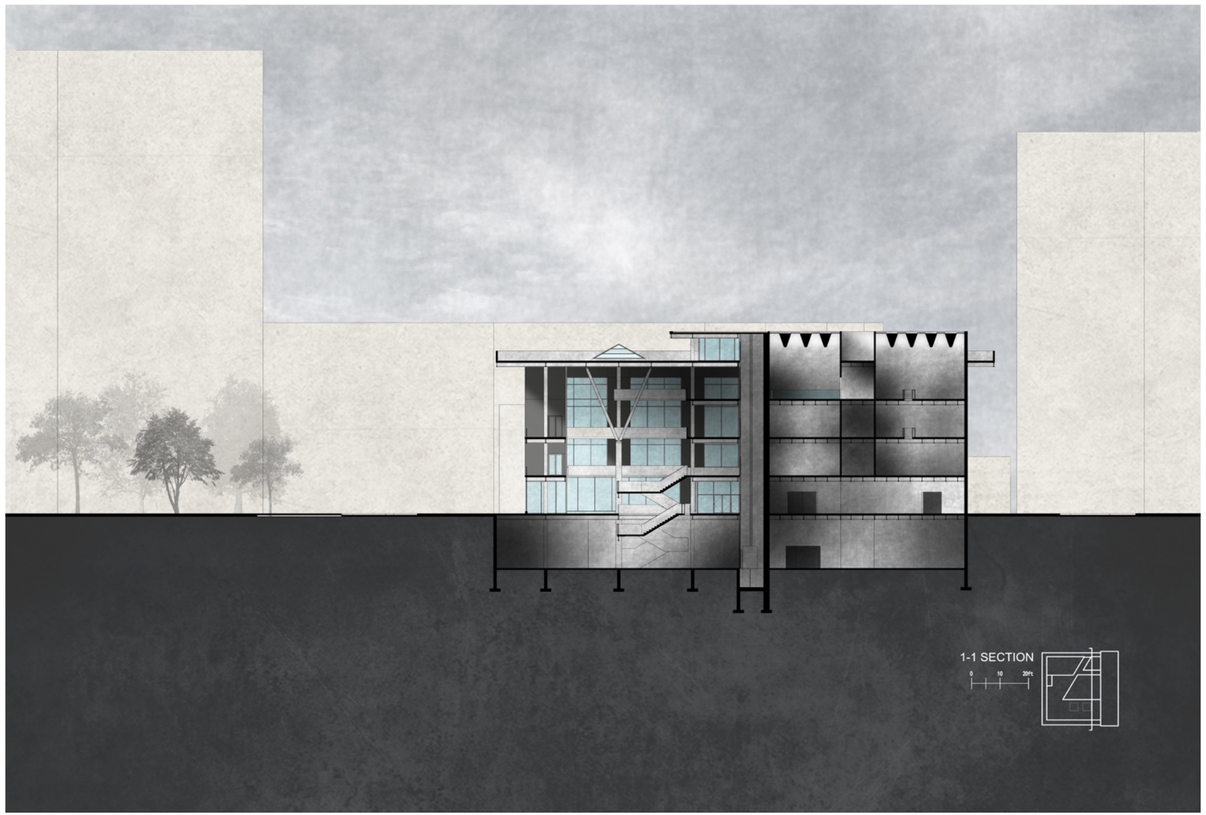
Fifth Floor Plan



"Split-Level" Reading Area

This rendering shows the reading space in the volume at northwestern corner on fourth floor. The V-shaped beams are working as stucture and shading device at the same time. The beauty of exposed concrete is reinfored by the light coming above.

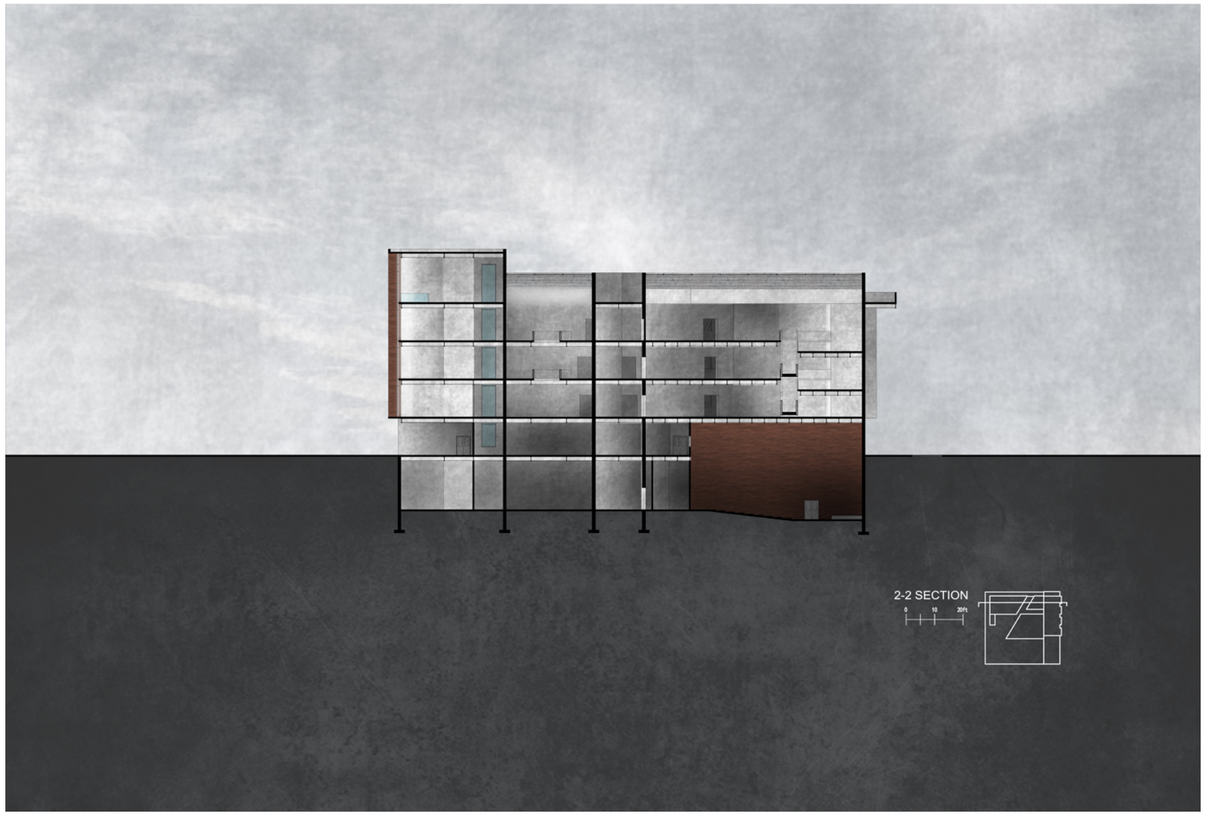
1-1 section



Space for Contemplation

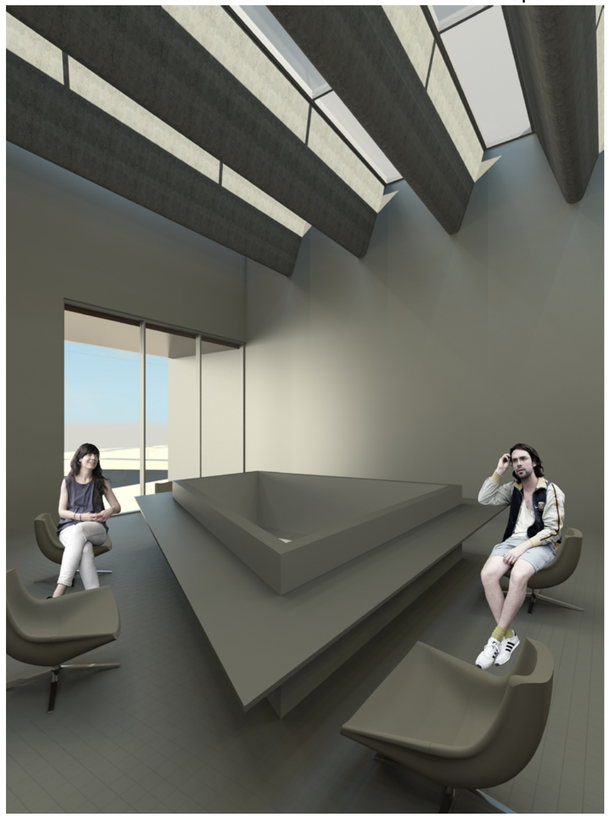
This is a space for comtemplation which sealed by four solid walls to provide a quiet environment. The soft light coming from upper floor creates a peaceful ambience.

2-2 section

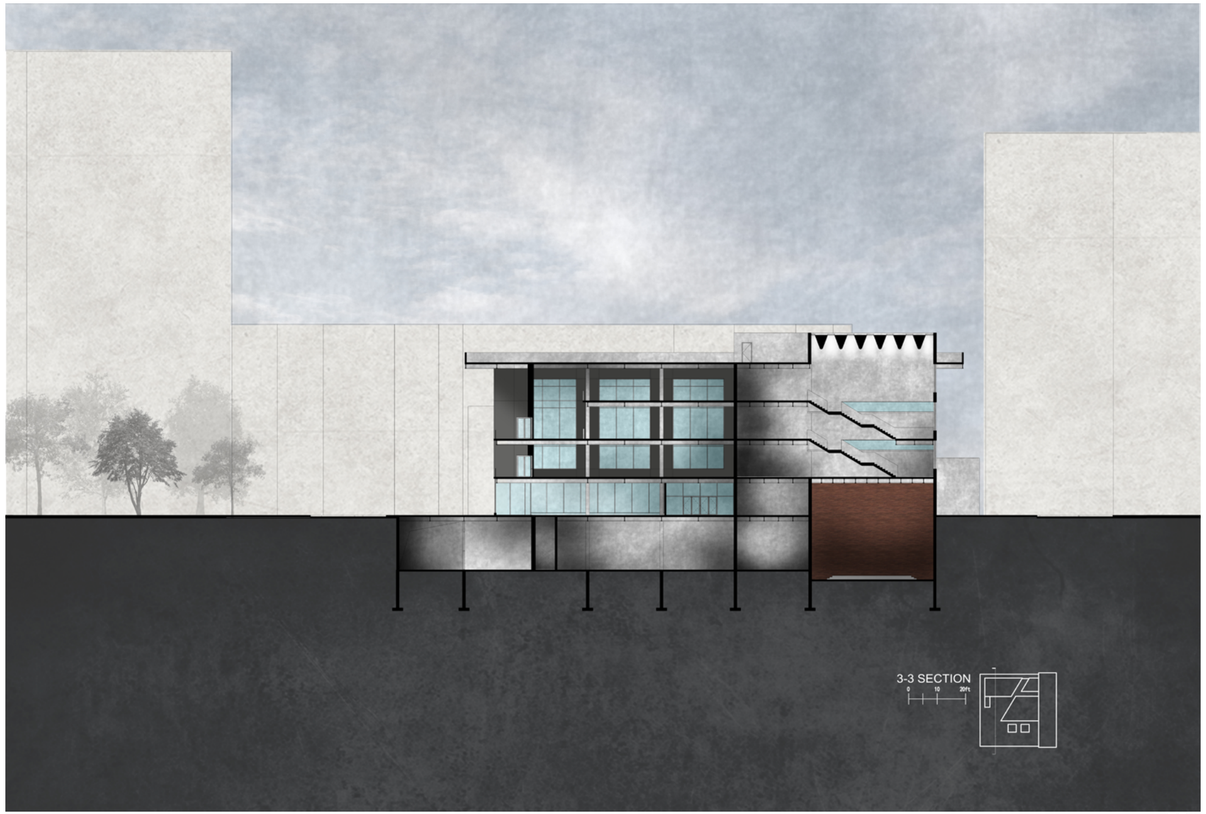


Group Room

In the library, people always study alone inthe reading area or discuss with other people in the meeting room. In this space I want to create an area where people can study individually but also have a feeling of learning as a group. I inserted a void stretching from second floor to fourth floor in the middle of the space so that a center is created. People sit around this void space and are able to see what is happening on lower and upper floor.



3-3 section

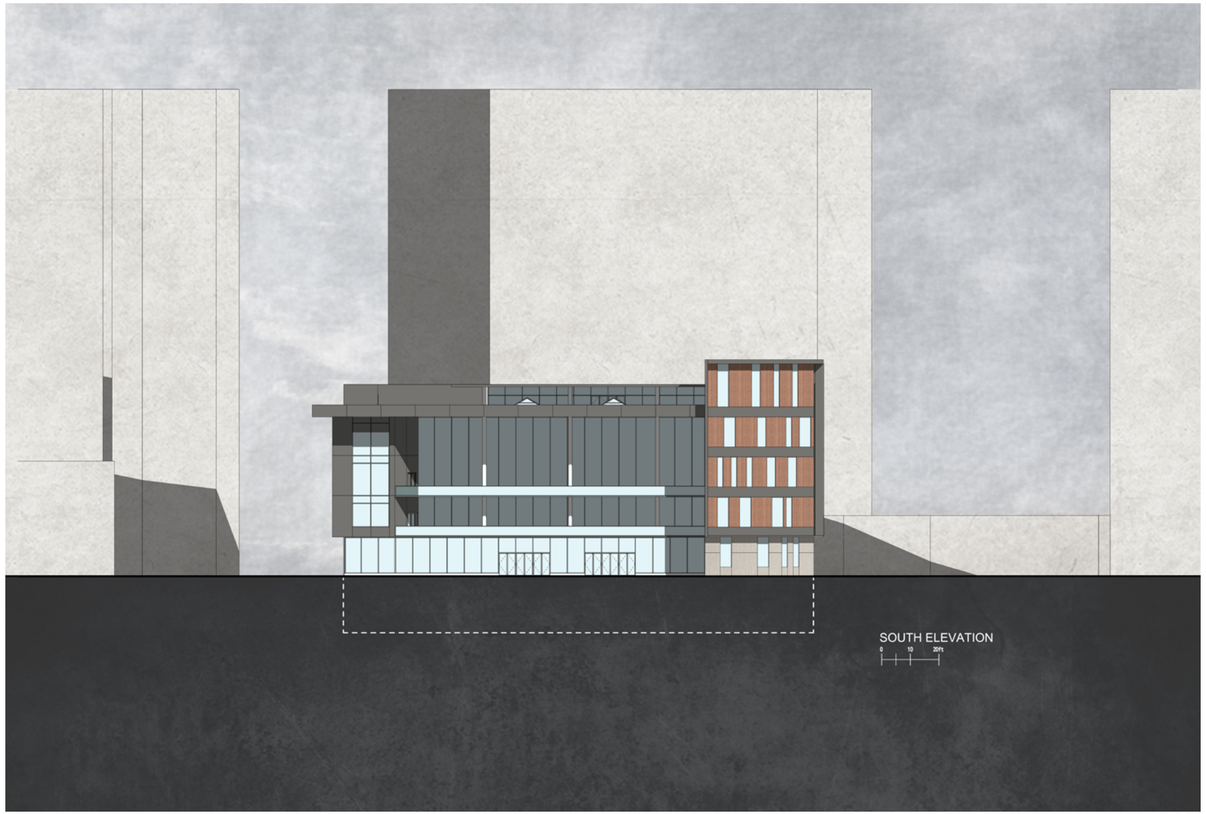


FACADE

Most of the buildings around the site are using heavy stone as the materials for their facade which makes the atmosphere in this district very rigid. In order to improve the quality of this district, I used aluminum panel, wood and glass to create a building which is open to the public.

Facing the public park to the south of the site. the south facade is using curtain wall to allow people to see through the building and know what it happening inside. Also, it provides people inside the building a nice view towards the public park. The views for west and east facade are blocked by two buildings. I designed wooden louvers on these two facades to seperate people from the building and protect them from glaring from the sun. Programs in the north part of the building is reading area. The soft and stable light from the north is pleasant for reader so I created some opening allowing people to have a view toward the residential area with tree which is to the north of the site. Besides, I used heavy stone as the facade material for ground floor to protect the building from water.


EAST ELEVATION
0 10 20Ft


SOUTH ELEVATION
0 10 20Ft


NORTH ELEVATION
0 10 20ft


WEST ELEVATION
0 10 20ft

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