



# Re-thinking public library spaces with diversity and essential roles

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Master's thesis

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## Abstract

After the Internet was developed, public libraries additionally provided many kinds of activities, such as console games, making something in maker space, free Internet connection, and so on. The public library spaces become diverse, and people can use there as free space. While this is an excellent way to increase the number of patrons, I feel people reading books is decreasing. As libraries become more convenient and many people use them as free spaces, few people show interest in the library materials, and I felt that the book shelves seem to be just an orderly row of books.

My diploma thesis aims to reorganize public library spaces to promote the essential roles of a library along with the embraced diverse new functions of the public library. Today, when the public library becomes freely used, we need to rethink the spaces connecting patrons and literature because just placing books is no longer enough for anyone to read them.

In the first part, I refer to current public library designs, concepts, and trends after the Internet has been commonized. I also mention the future prospection of public libraries as a literature review to consider new public library designs. Secondly, I mention design methodology, which approaches the interior and urban sides to consider the well-balanced between diverse functions and essential roles. In the end, I show the new public library design in Fukushima City by using its methodology as a result of my design approach.

Through this diploma thesis, I suggest a design approach from both interior and urban perspectives as one of the ways to rethink the library space and attempt to see how it creates architecture in the actual site.

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## Introduction

After the Internet has been developed, our life became more convenient with smartphones, tablets, laptops, etc. We can access information anytime, anywhere. They allow us to chat together, have a meeting, search for information as well as read books within one device. People do not often go to the public library just to search or obtain information. To obtain customers to libraries, they started to install diverse functions, such as 3d printing machines, PC games, and craft rooms, focusing on more experiences. As a result, public libraries have diverse functions and are used as free spaces with flexibility.

However, at the same time, library materials, including any kind of books, audio materials, and video materials, are not the main focus anymore. The presence of materials in today's libraries seems like an additional thing. We must reconsider the library spaces within their essential role, which connects patrons and literature as part of the principal roles in a diversified library (Lisbdnetwork, 2013). In this context, literature broadly represents any kind of

library materials, and library spaces should connect them to patrons somehow because library materials are not decoration.

The main aim of my diploma thesis is to reorganize public library spaces that have already become diverse in their functions, considering the library's essential role. The public library can no longer be the place for stacking all the information with millions of books because Internet development replaces part of the library's roles. Still, library spaces can encourage patrons to read books and access literature. Public libraries should have spaces that inspire patrons to access literature with interest in a comfortable, unique, and calm atmosphere. These spaces should coexist with today's diverse functions of libraries because they have the potential that diverse functions can invite more people to the library as an entry point, and library spaces promote people to access literature.

This project consists mainly of three parts: The necessity of rethinking the public library space as a thesis background, the design method development process, and the actual site design in Fukushima City in Japan.

- In the first part, I write about the roles and trends of today's public libraries to grasp the features of the current public libraries. I also mention the future prospects for considering future needs in general and developing my perspective of compromising diversity and essential role as a literature review.

- In the second part, I propose a design method that approaches from both the interior side by suggesting interior gimmicks and the urban context getting from the city.

- In the third part is the idea developed in the actual city in Japan. I refer to how the method can be expanded on the existing site and how to become architecture from interior gimmicks and urban context. The new public library designs are shown at the end as a result.

# 1. Public Libraries today

## 1-1 Public libraries in the information and communication society

Thanks to the development of Internet technology, we can access information anytime, anywhere, using smartphones, tablets, laptops, etc. Before ICTs development, we collected information mainly through books, articles, journals, etc., but today, we search for it on the Internet first, then read some books or papers to get more profound knowledge. In other words, the books' value has been significantly changed by it. At the beginning of the shift, libraries started to offer digital materials.

According to Amollo (2011), in the 1990s, the first online library service began using online catalogs, which were not web-based and required the software to run interactively across the Internet using various protocols. In 2000 web-based digital materials and catalogs began to be available. After the Internet was introduced to libraries, it seems to be one of the most excellent disposals and delivery systems in the point of information seeking and delivery because it allows library patrons to find information quickly. (Pandita & Br, 2013). Pandita & Br also

assume that a library without an internet facility or internet access can no longer be a modern library. Today, the Internet is a must to provide patrons with any opportunity. The presence of the Internet in public libraries has made the social roles of public libraries and the expectations for public libraries by patrons, communities, and municipalities (McClure & Jaeger, 2009). Public libraries have become centers of internet access in society, providing free internet access to patrons, communities, and governments. All library visitors, no matter what richness, tribe, or background, can use the free internet access through their own devices, such as smartphones, laptops, or some devices which are in libraries (John Carlo Bertot et al. 2011). Around this time, the role of libraries, which previously collected and stocked all kinds of information, began to change through the widespread use of the Internet.

Many discussions have been about the Internet' s influence on the library in recent 20 years. The roles of libraries in this era, where electronic

services and internet information sources constantly increase, seem to be defined as disseminating and sharing the culture of knowledge (Maan & Gopal, 2013). The Internet could help patrons within the library provide both e-materials and physical materials.

George D' Elia et al. (2007) researched the impact of use on public library use, focusing on the youth generation. A library is a place for everyone, regardless of age, gender, tribe, etc. They researched the Internet's impacts on the library, focusing on the youth generation because they had already gotten used to it then. According to the research, internet accessibility and the use of public libraries are complementary activities in the point that more youths who do not have the Internet at home visit libraries to use the Internet. However, the Internet has become common today, and everyone can access it from everywhere. In that case, we need to discuss the library's needs again with the Internet communication society.

Gad & Gopakumar's study (2019) validated the impact of the Internet on the use of libraries and if the Internet has reduced the utilization frequency of libraries. The questionnaire result shows that 66% of people prefer using the Internet to libraries because the information from the Internet is available 24 hours. More than 80% also answered that the Internet has reduced library visits. However, in the question: Will the Internet replace the library, 70% of people answered "No." , rather Internet supplements library activities and services. From these results, the authors emphasized that the Internet cannot replace the library as a conclusion. Even the Internet has more potential to improve library service and management at the point of material searching and inputting more digital materials such as e-books.

John Carlo Bertot et al. (2008) emphasize the importance of producing the Internet in the public library in the local community. Public libraries have prompted essential and invaluable community services by providing internet access and services to

all local communities. At that time, public libraries also created new social roles and services between patrons, librarians, communities, and governments by ensuring free public internet access as part of the local infrastructure. But also indicate rethinking the necessity of specific Internet-based service roles and the appropriateness of these service roles in communities for future demands.

Since the Internet has been standard, almost 30 years have passed, and today public wifi allows us to access the Internet everywhere, even outside of the building, such as city-wifi and park-wifi. People do not have to go to the library just to use the Internet. In this phase, I mentioned the impact and importance of the Internet in the public library as part of the project background because these impacts are so huge in the public library history. In the next phase, I will write about how the public library has changed its roles and functions and created its values since the Internet has been commonized.

## 1-2 Roles and Functions of the public library today

After the Internet has become common, how are public libraries creating their values, and what are their roles and functions? Today, this topic is frequently discussed with governments, municipalities, librarians, architects, service designers, etc., to recreate new frameworks for libraries.

For example, in Finland, the Finnish Library Act was published in 1928 and modified in 2016 (The Ministry of Education and Culture, Finland, 2016). It defines the following six things as library roles.

1. Providing access to materials, information, and cultural contents
2. Maintaining versatile and up-to-date collections
3. Promoting reading and literature
4. Providing information services, guidance, and support in the acquisition and use of information and versatile literacy skills
5. Providing premises for learning, recreational activities, working, and civic activities
6. Promoting social and cultural dialogue

The Library Act, modified in 2016, describes basic notions of public libraries' roles in the recent information and communication society. In Finland, the roles of public libraries are considered to be a place where people can get a variety of experiences and opportunities based on accurate and deeper understandings of current user needs to be obtained through codesigning with citizens. As a result, Finnish public libraries are developed as community centers, public squares, or cultural centers. In concrete, the public library provides contact between information and people who do not have the ability to access the Internet or the skills to use Web services. It also supports patrons with the creativity to create their works by providing specific equipment such as a 3D printer and laser cutting machine (Miettinen, 2018). This Library Act has made public libraries' roles more diverse.

According to Gemma's research work (2016), the public library's essential role is to allow people to pursue a wide range of interests and activities. In

this information society, individuals feel comfortable with the public library as a neutral free space where they can do their business, study, meet, and hang out with friends. The essence of the public library is to provide library materials, but in a broad sense, public libraries offer any kind of space to read materials, work, study, and meet with people as opportunities. In other words, the author called human-centered design, which was called codesigns with citizens by Miettinen. People who are engaging to improve public libraries are possible to find essential elements by understanding user needs more carefully.

Maker spaces, providing new technology, including 3D printers, 3D scanners, laser cutting machines, etc., are also key factors in public libraries today. As part of learning digital skills, public libraries provide these kinds of maker spaces for everyone. It has become popular because patrons are able to enjoy learning how to use digital equipment for creation—including public libraries in the United States, Nordic countries, and the Netherlands, maker spaces taking

an essential role in the public library concepts that promote social encounter and discovery, permeated recent ten years (Caso, 2019). With the diffusion of maker space, public libraries can create a new opportunity that excites patrons.

Public libraries, which previously stacked a variety of information with books, audio, magazines, or newspapers, are turning into more diverse functions offering experiences such as internet skills, the latest technologies, talking with friends, playing games, and chilling out. Nowadays, where information is easily obtained through the Internet, public libraries seem to be considered important places for people to meet casually or get something new. Public libraries will continue to remain a repository of information, but we have to consider more activities that patrons need.

## 2. Future Prospects for Public Libraries

### 2-1 Literature Review of the future public library

I have written about changes in public libraries in information technology development and the current roles and functions of public libraries. However, internet technologies are developing even more rapidly than now for the future; for example, 5G data communication has already been developed, and 6G data communication is developing now. When this kind of technology becomes more common for everyone, we can do anything more conveniently through the faster Internet. Then how can public libraries be together with the latest technology, and what is the future vision of public libraries? In this chapter, I mention about current discussion about the future roles of public libraries as a literature review.

Joson (2022) has mentioned the importance of the public library as a community hub in a local community. According to her article, public libraries play roles in education, political movement, and community building. Public libraries are originally providing educational opportunities with numerous resources, books, internet access, printing facilities,

and academic and professional training programs that can assist economic and cultural development. In recent years, they also have rich online materials through the Internet. As education is one of the principal roles of the public library, it will continue from now on. Joson also referred that public libraries can support political movements which are socially discussed, such as gender equality, immigrants, skin color, LGBTQ, etc. Public libraries exist as free public spaces, which allow individual people to stay without hesitation and to find a home away from home. All in all, public libraries support making new communities because patrons can meet anyone regardless of background. Students could discover workmates. Mothers could find someone who can share the same emotions. Elderlies could make new friends through the social program. Community-making roles become essential roles now and future for public libraries.

According to the report by Hennebery Eddy Architects (2020), public libraries have to become flexible and diverse places for people in the future.



As Joson also mentioned, public libraries play the role of social gathering where people can easily meet, talk or hang around. Small kids can socialize and learn to be together with others by playing in an attractive children's section. The adult section is not the only place for studying or reading but also welcoming for multigeneration. For the future library design concept, inside spaces need to be optimized for patrons and programs. In addition, things should remember that librarians are also library users from an architectural perspective. Improving plans for librarians led to enhancing library services for patrons. Automated technologies allow librarians to communicate more time with patrons, enhancing productive library services. Therefore efficient and effective work environment for librarians is needed.

As Hennebery Eddy architects reported, automated technologies are crucial elements to improve spaces more efficiently. In my opinion, public libraries should actively install technologies that assist librarians' work. What can the latest technologies help

for efficient librarians' work? Focusing on the library service, Nolan (2022) mentioned AI for the library service, especially personal experience analysis. When patrons register at the library, every patron has a user ID or user code, which helps to manage all the patrons' information. AI can analyze data connected with a user ID, what patrons previously loaned, the frequency of library visits, and the experiences that patrons did in the library, and then AI can suggest recommendation books and new activities based on the data. Focusing on the spacial things in the library, robots, and automated sorters allow librarians to work more efficiently (Lee, 2020). For example, Shelf-Reading Robot manages the location of tons of books in the library by scanning RFID tags that numberings library materials. In the background of robot development, librarians wasted time putting back books in the correct places from erroneously placed by patrons. During the closed hour, Shelf-Reading Robot scans all shelves and informs librarians if some materials are mislocated by apps showing maps. Librarians easily find materials and put them back on

the correct shelves. An automated sorter helps to sort materials by the same genres when patrons return them. Sorted materials are stacked in one box, and the librarian carries them back to the correct position by hand.

All in all, whether future or current, public libraries need to be diverse and comfortable places where people can socialize, regardless of their backgrounds. In all ages, the latest technology will help to develop public libraries.

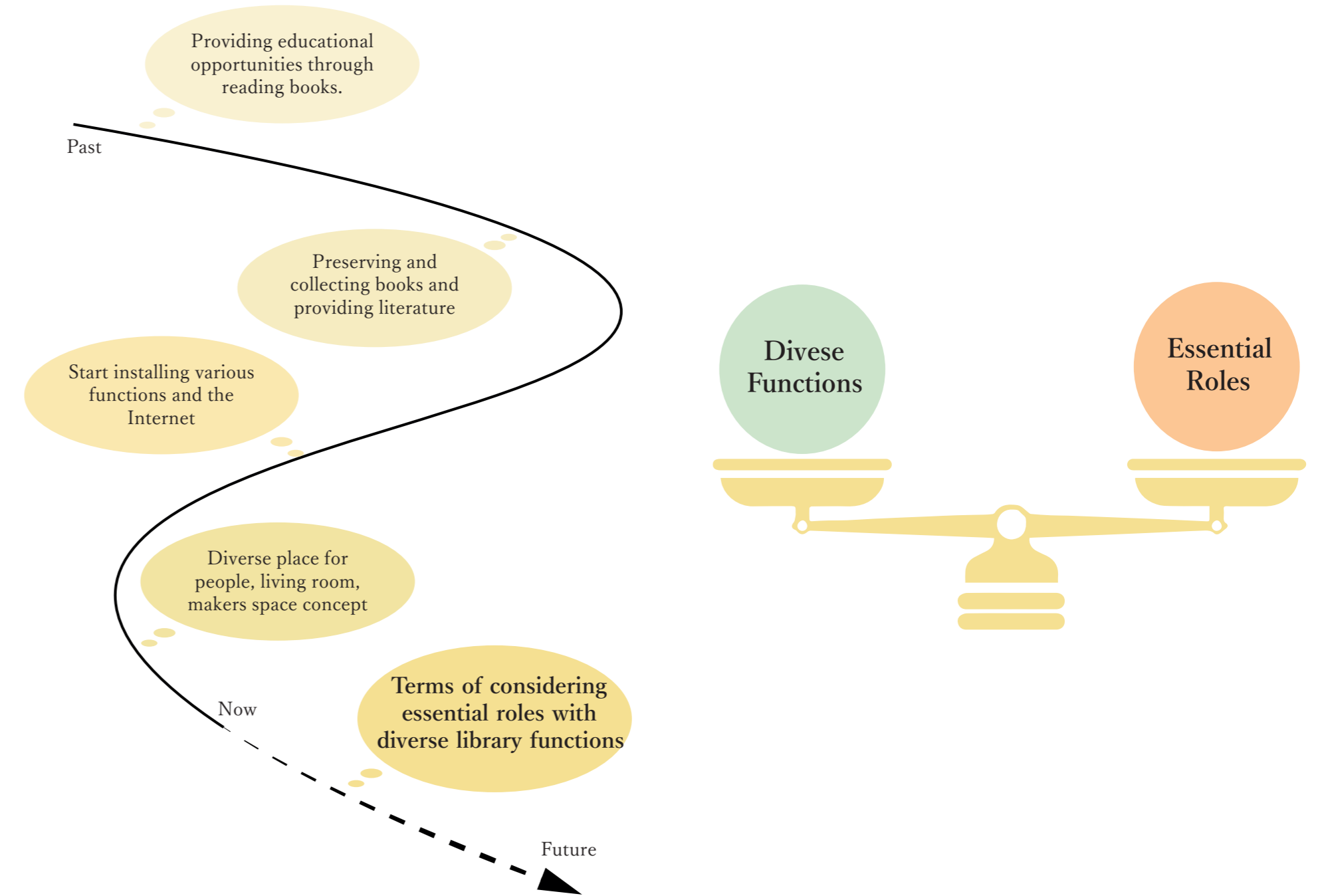
## 2-2 Why do we still need public libraries?

There are many discussions about the future of public libraries, and there is no right or wrong answer. In this chapter, I write my perspective on it as a design concept in the next phase. As Joson and Hennebery Eddy architects said, I agree that public libraries are community places where people can gather and socialize easily. The space should be like a living room away from home.

However, I feel some gaps in public libraries today. Patrons use them very freely, such as studying, Chatting, hanging around, playing, and making something in the maker space. It has already been a living room away from home. On the other hand, few people are reading books or using different library materials. As public libraries have become more convenient, patrons seem to read fewer books there. This balance has become more important now. Can we still call it a “LIBRARY” if no one reads books in the library? Library space needs to be careful to encourage patrons to access library materials actively. Library space should connect patrons with literature,

whether patrons visit the library to study or hang around. For example, do we have to put thousands of books on one shelf showing their spine? Putting more books showing their front cover on the shelf would stimulate patrons to read books more. Public libraries have played a role as the Third-place for a long time. Their concept should continue from now on, but if we desire to make space to stimulate patrons’ reading, we must rethink that; Is traditional bookshelf arrangement achieving patrons’ inspiration to read? Thanks to AI development, near future, we might be able to easily find specific books that patrons want to read, such as research materials, in the storage or open shelf area or even on the Internet. Libraries can save space for setting up a reading environment.

My point of view is how to accommodate spaces that inspire patrons to read books and the current spatial feature: public libraries are accessible places for everyone in any case. Public libraries need to be restructured their values to suit both the living room atmosphere and promoting literature.



## 3. Design Concept

### 3-1 Design Approach -From the perspectives of interior experience and urban context-

The architecture design process usually starts with getting contexts from the city, urban design, topography, climate, economy, tradition, etc., to find design keys(Olsen, 2021). In this public library design project, I approach both the interior side and the urban context at the same time.

The interior side, the closest part of architecture for patrons, is defined as interior gimmicks. These gimmicks are derived from activities in the public library and spaces inspiring patrons to read books. In detail about activity, what activities can happen in the public library either library provide or patrons-self. Eating food, studying, talking, using maker space, playing console games, playing board games, accessing the Internet, etc. Library spaces have already taken these activities in recent years, and it will be essential to accept them from now on too. But as I said, how the space encourages patrons to read books is the most important because of public libraries' essential role in connecting patrons and literature. Attracting activities invites people to the library space as the

first contact, and attracting space keeps them in the library. Interior gimmicks help to consider how the library effectively attracts people, which kind of space attracts patrons, and which space efficiently encourages patrons to read books with visualized diagrams. When considering library space, concept, and user demands, interior gimmicks help a lot for all planners, such as architects, service designers, librarians, and patrons-self. The library space can organize flexibly and diversely by combining some interior gimmicks according to patrons' requests and local or country context.

Another way around, considering contexts from the urban scale, one of the most common ways, have been chosen for deciding the architectural shape because local contexts have enormous affection in determining the form of architecture. For example, what sceneries can be seen from the site, how much traffic there is, how much greeneries there is, and how people go through there. I propose architecture and exteriors that reflect the local context as a frame

into which the interior gimmicks are inserted.

This design approach allows the interior design to create a well-considered user experience, activities, and inspirational environment to read books. At the same time, it enables the architectural design to develop well-considered architectural shapes reflecting local context and information as a frame to insert interior gimmicks. By approaching at the same time, it is possible to propose a public library that plays fundamental roles, connecting patrons and literature with community-friendly and accessible architectural forms.

## 3-2 Design goals and Aims

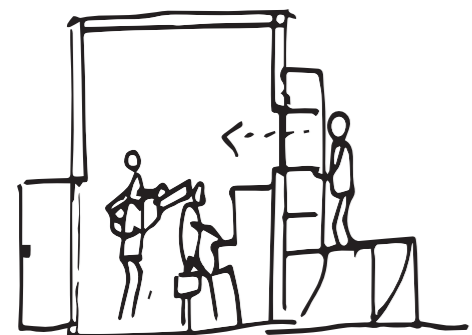
I believe that my design approach from both sides, interior and urban context, is one of the efficient ways to think about public libraries to reconsider current usage, trends, and the essential roles of the library function because all the notions of design are based on user experience and user-friendly or inspiring uses.

One of the main goals of my design work is to create a well-balanced public library space that is like a living room in an urban area and inspires patrons to access literature by using interior gimmicks and an urban approach. Interior gimmicks and the urban approach are the basic concepts of my design, but when the design goes more profound, they also include interior, exterior, and façade materials to make a comfortable, warm, and welcoming atmosphere. The new conceptual public library is designed with interior gimmicks, spaces made by combining them, architectural planning, and materials in total.

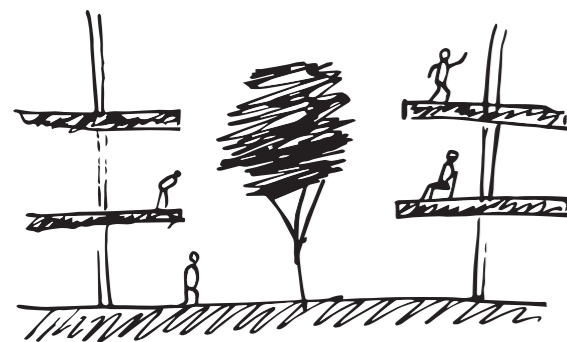
I think that how this library design provides the first step of experiences for patrons is also crucial as part of the user experience. Organized spaces should interact with each other to produce serendipity for patrons, whether people visit the library to read books, make something in the maker space, or just drop in. For example, if someone visits a library to read books and sees other patrons use the maker space, he may want to use it next time. Or if someone visits a library to use the maker space and finds some inspiring books on the way to the maker space in the library, his journey to access literature might begin as the first step. Therefore, my second design goal is to design a space that combines function and environment that encourages reading by providing serendipities for patrons as the first step.



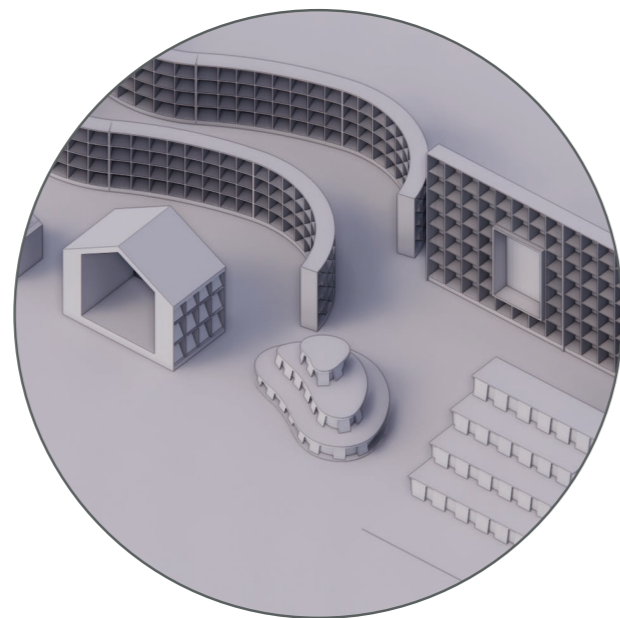
Encouraging environment



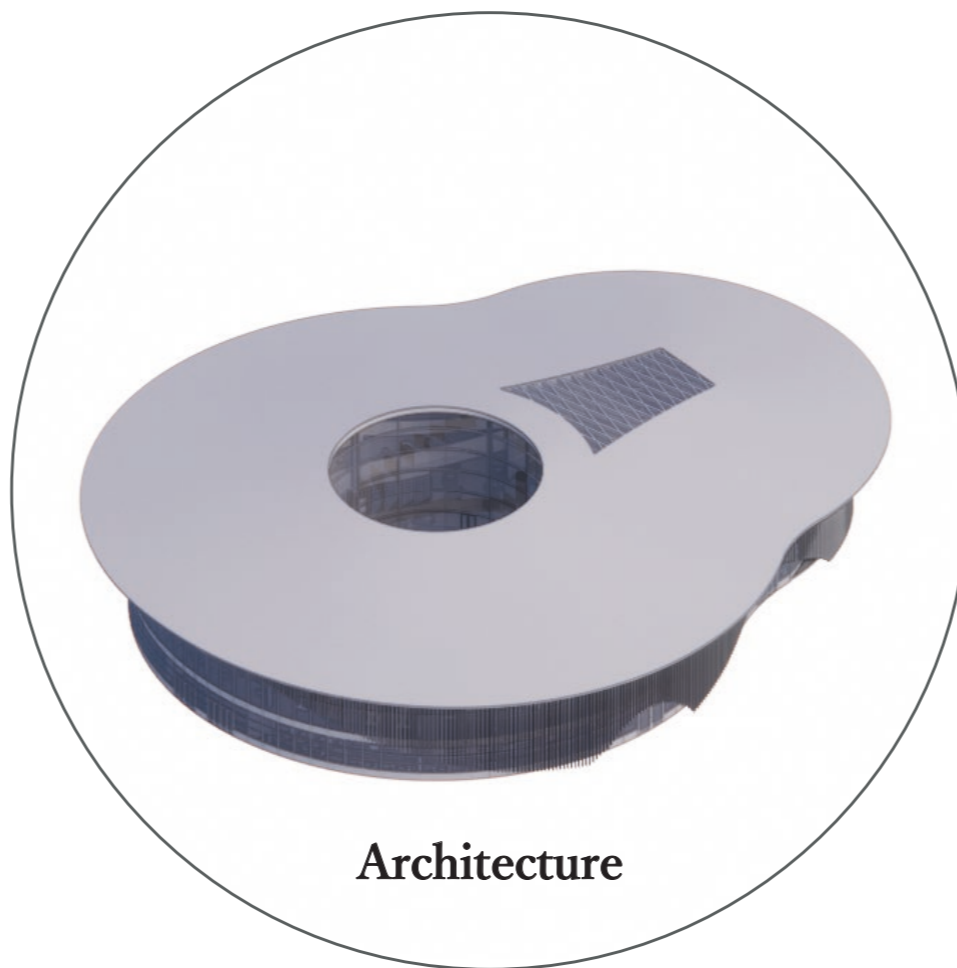
Activity experience



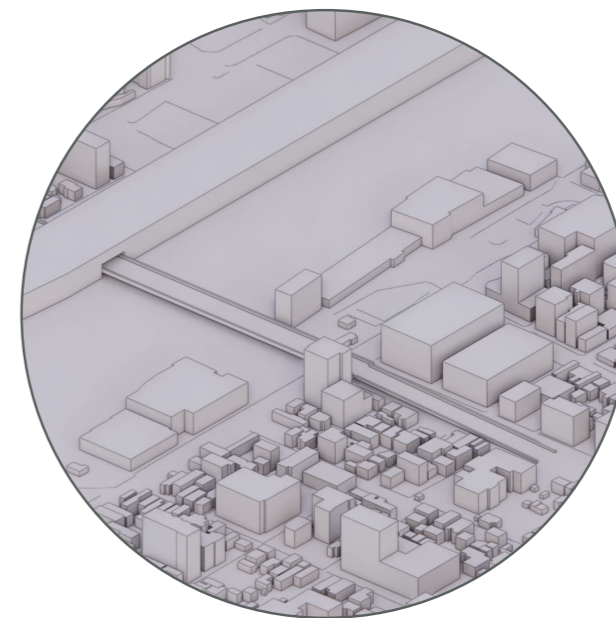
Architectural planning



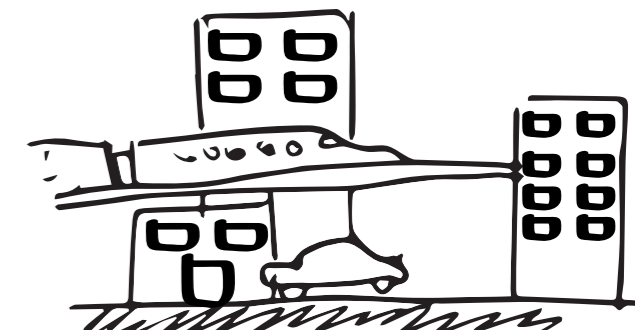
Interior gimmicks



Architecture



Urban context



Transportations

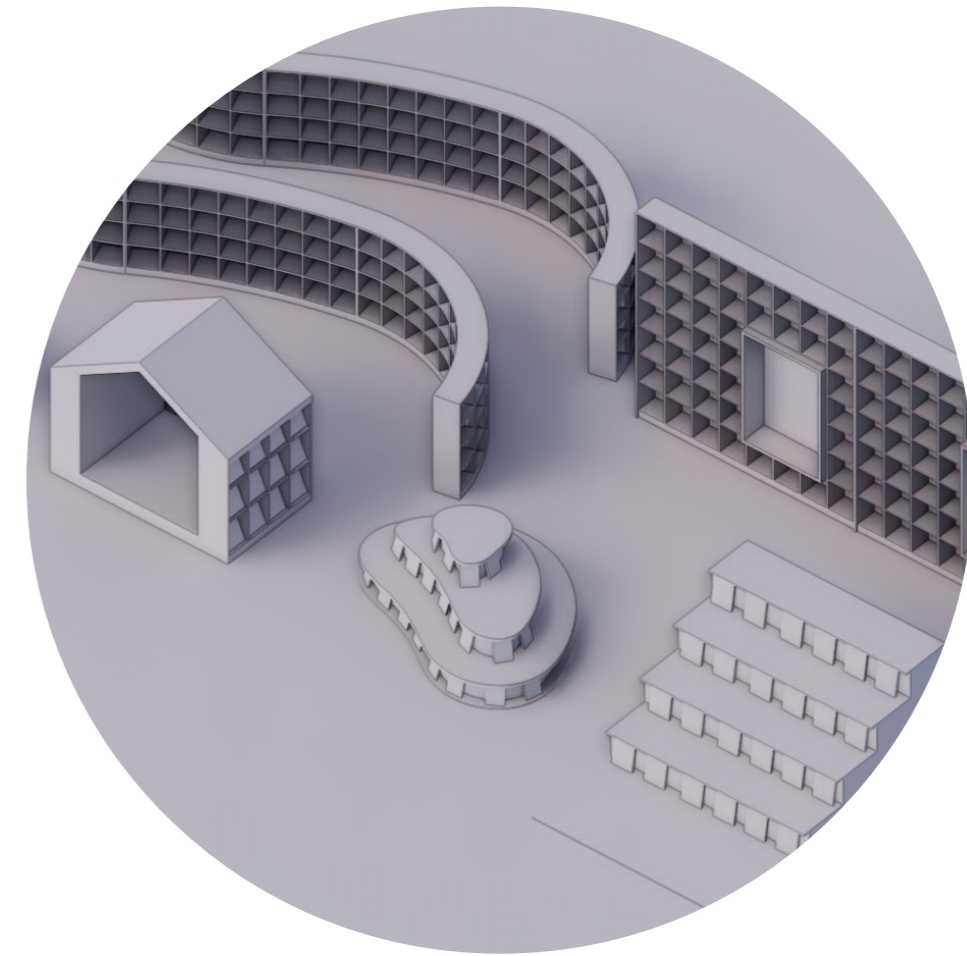


Buildings



Nature & Landscape

## 4. Interior Gimmicks



## 4-1 Interior gimmicks

While I was doing my thesis work, I could come up with 76 possible interior gimmicks to develop the public library space. To consider the balance of recent trends and essential roles, these are categorized into the following three sections: Activity Experience, Encouraging Environment, and Architectural Planning.

### 4-2 Activity Experience

This section is composed of experiences through activities in a library. These include regular activities provided by the library, such as board games and digital devices, and also unexpectedly produced, such as genuine furniture.

### 4-3 Encouraging Environment

This section comprises environments and spaces that encourage patrons to read books and access literature more actively. The main focus is on how other patrons who visit not to access literature start to take an interest in books and other materials and how they may want to read books. Therefore, there are various

space suggestions to boost connecting patrons and literature.

### 4-4 Architectural Planning

This section is composed of other space ideas, such as how to design mutuality between spaces, user-friendly design, and for better feelings. From the zoning stage to the selection of materials, these gimmicks are broad proposals to make library spaces more comfortable

In this library design work, everything is not used because some of them do not suit the site context, but according to the site context, designers can choose which interior gimmicks are needed.

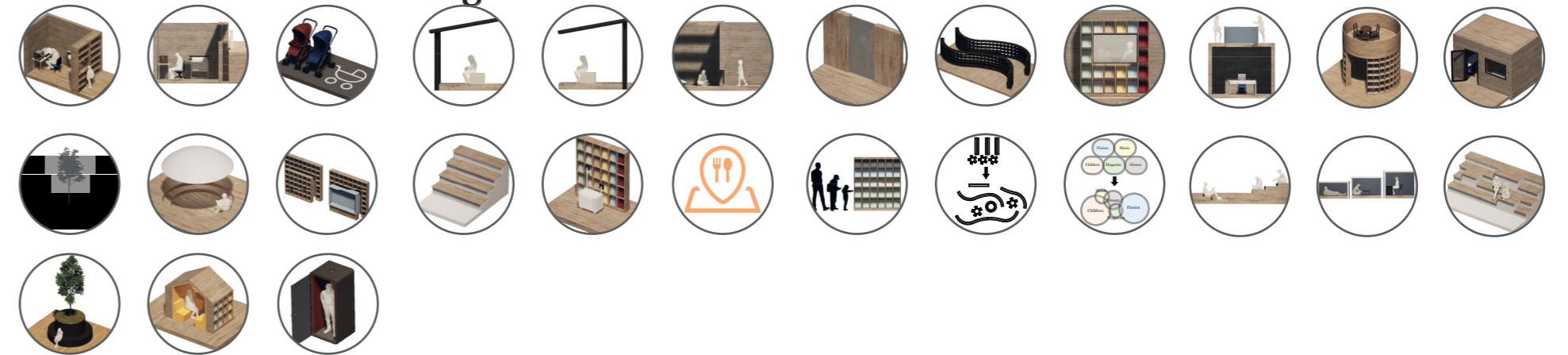
## 4-2 Activity Experience



## 4-3 Encouraging Environment



## 4-4 Architectural Planning



## 4-2 Activity experience



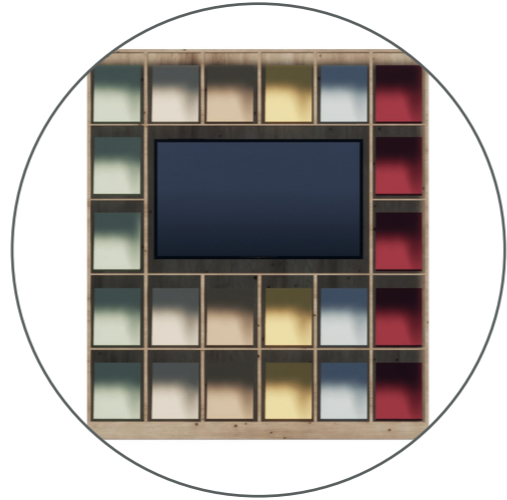
### Music sound flowing

When the patron plays music materials, the sound flows to other areas, becoming a BGM.



### Music sound flowing area

Music sound flows to a limited space by surrounding walls.



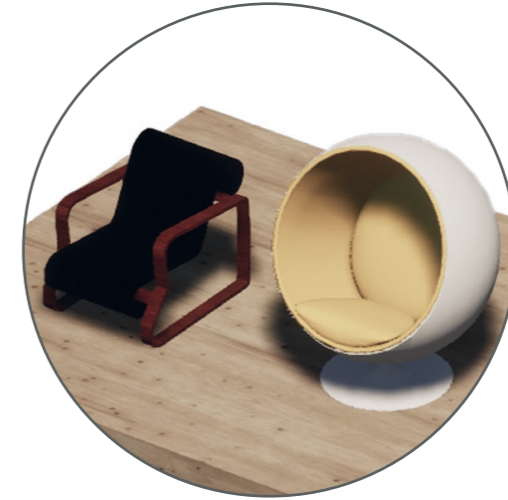
### Digital signage usage

Digital signage shows information, latest arrives, recommendations, etc.



### Local item exhibition

Local items like traditional crafts and hand-made items are exhibited in a corridor or a hall space.



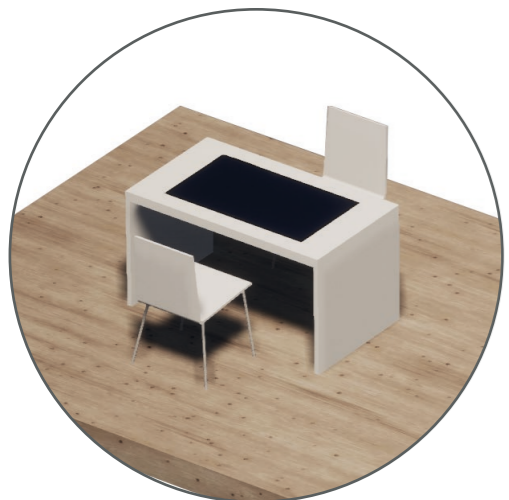
### Genuine furniture experience

Genuine furniture is very expensive if buying one, but if the library has one, everyone can get a seat.



### Exhibition shelf from maker space

Patrons can put their works made in maker space as an exhibition and stimulate other patrons to make.



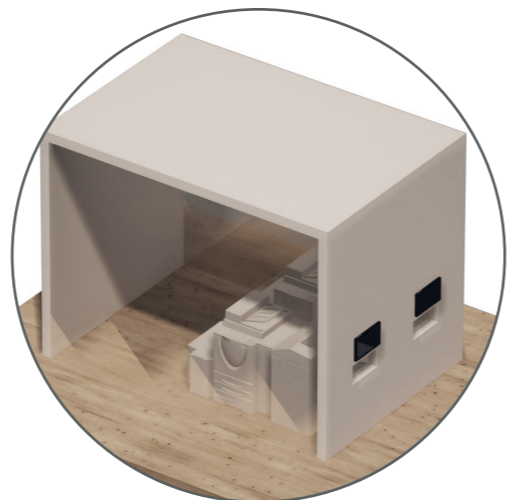
### Digital device table

A digital device attached to a table can play games and search for materials.



### Big shogi board (Chess board)

Big board playing with standing and walking, small exercise.



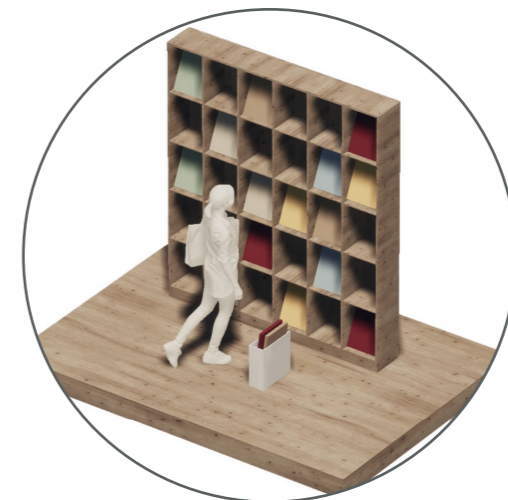
### System visibility

Book returning systems are visible in how machines manage returned books.



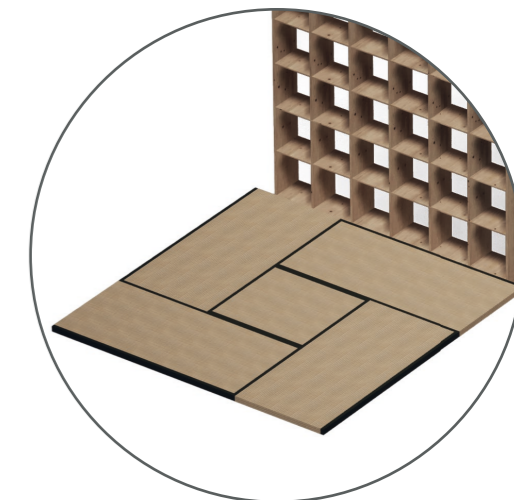
### Drawing allowed wall

Black-board painted walls allow children to draw.



### Second-cycle books exchange shelf

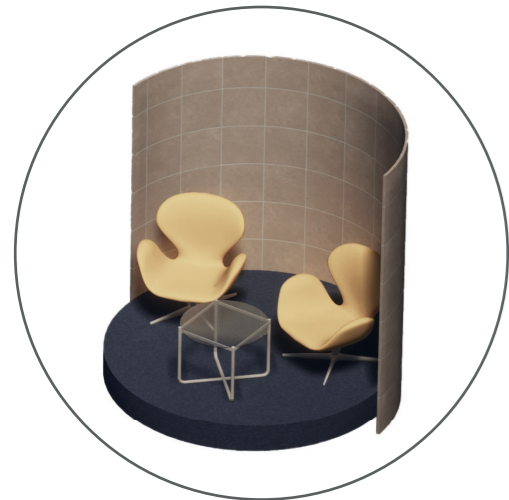
Patrons can bring books they do not need and exchange other books as second-cycle books.



### Traditional material experience

Traditional materials are expensive, but if a library has them, everyone can gain experience equally.





**Small stage**

A small stage can normally use as a seat, but it also can hold, such as small talk shows.



**Librarian radio studio**

Librarians can broadcast their radio in a library. All the patrons can be listeners.



**Board game area**

Chatting allowed board game area is popular for fun.



**Digital touch panel accessibility**

Digital touch panels allow patrons to access e-materials, short games, and encyclopedias.



**VR experience**

A library space can provide a VR experience that is expensive and difficult to use.



**Visibility of librarians' work**

Showing librarians' work provides patrons interest or would become someone's dream.



**Art exhibition**

Small genuine art will inspire patrons to do anything.



**Kids artwork exhibition**

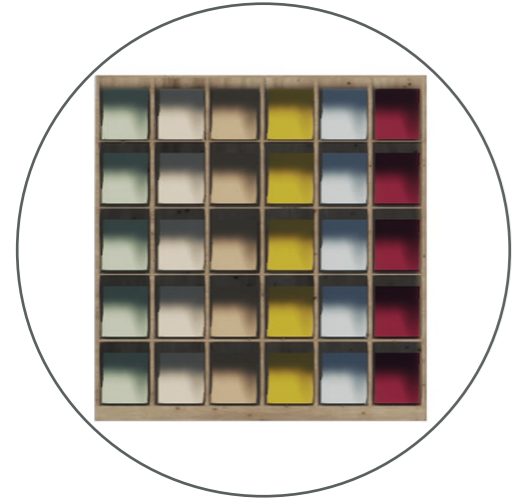
Kids can draw anything they feel on paper. The library has space for an exhibition to put kids' works.



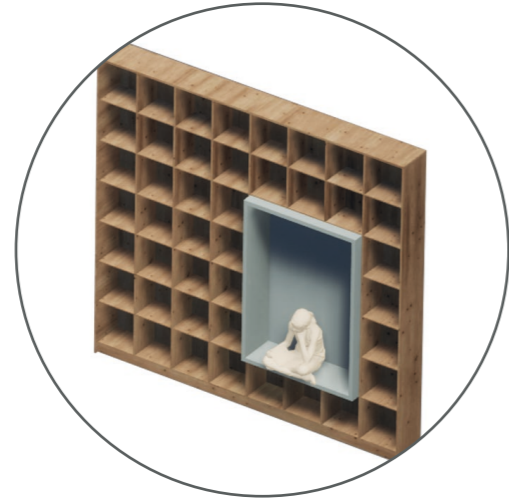
**Programming lab**

Programming is one of the hot topics today. Library space provides patrons to start programming.

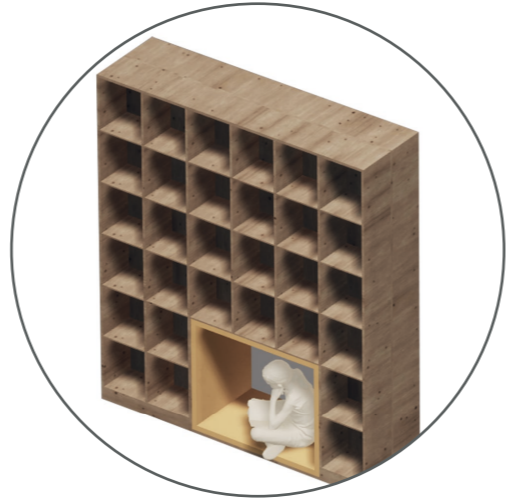
## 4-3 Encouraging environment



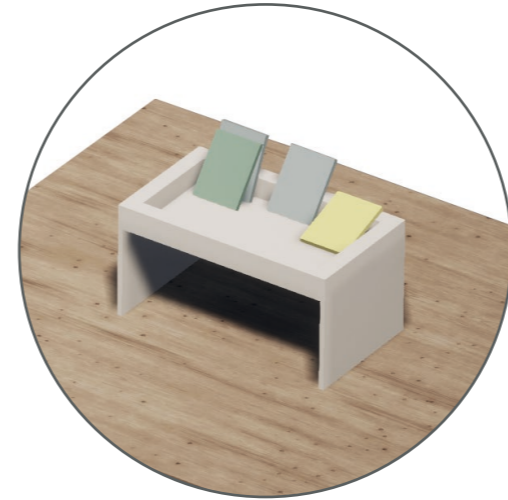
**Arrangement of books showing**  
Showing book covers instead of spines stimulate patrons to get more interest in books.



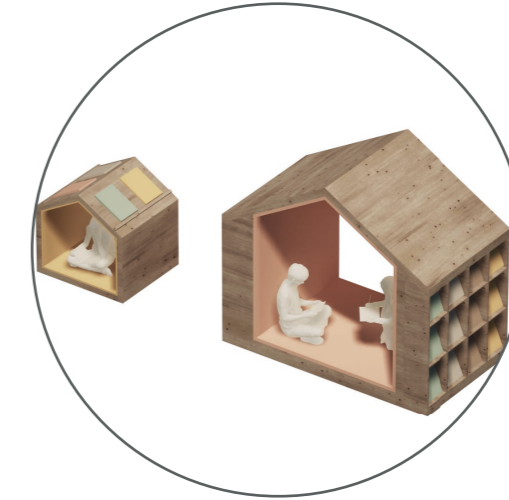
**Seating right away**  
By making a small seat into a shelf, patrons can quickly have a seat and start reading if they are interested in books.



**Small hole comfortability**  
Smaller scale space would be more comfortable for reading than bigger space.



**Book return pocket table**  
When patrons return books after reading, others can see the locus from others in the pocket.



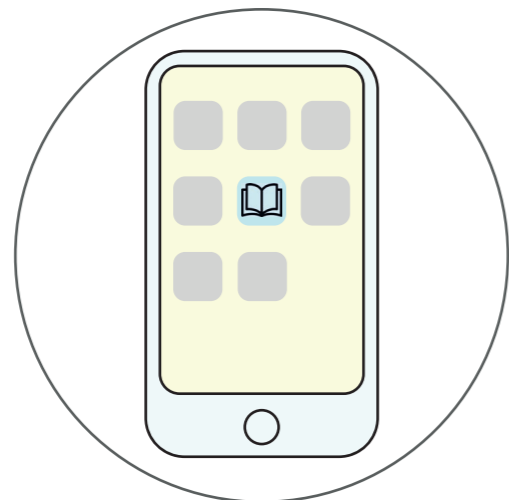
**Narrower open hole space**  
Narrower open hole space can provide small-scale space with seamless visibility.



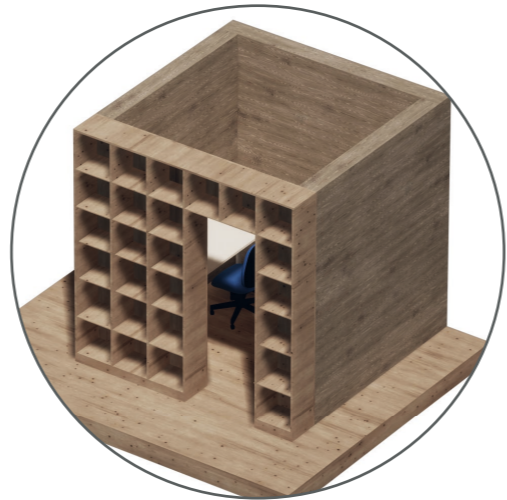
**Freestyle seating**  
Patrons can have a variety of seats, such as sofas, giant cushions, etc.



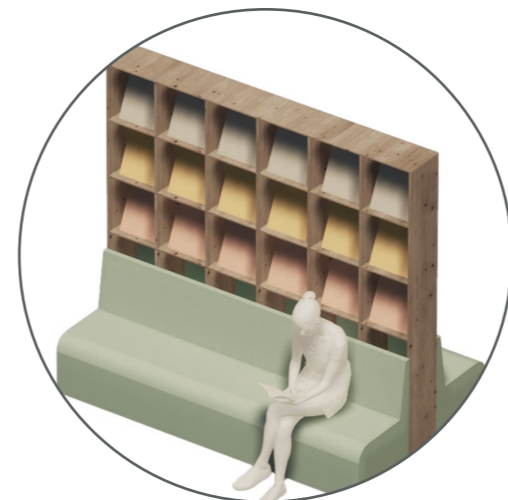
**User recommendation**  
Patrons can give a recommendation to other patrons with a recommender's photo.



**Apps activation**  
Library apps can stack user information, use it as a library card, see a recommendation, searching materials.



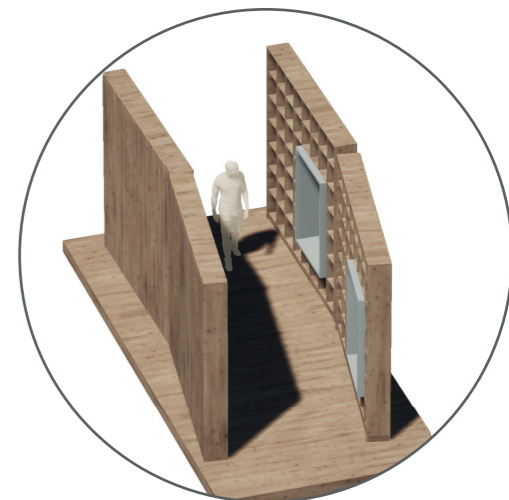
**Concentrative hidden desk**  
Smaller scale desk space allows patrons to read books or to work more concentrate.



**Relaxing bench shelf together**  
The bookshelf attaches just behind the soft seating bench so that patrons can take a book even in a short time.



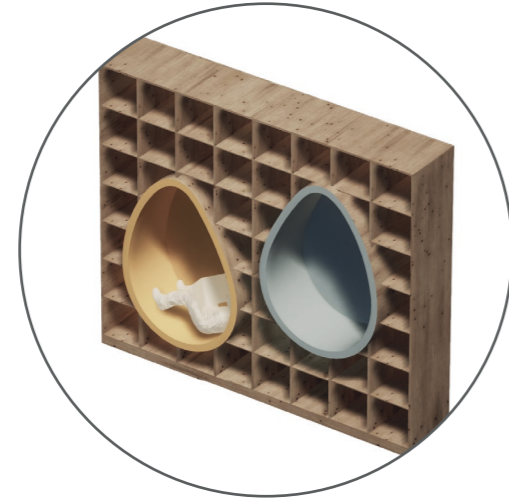
**Pillar attached book place**  
Book place connecting pillar is used for trend books for a different generation by place height differences.



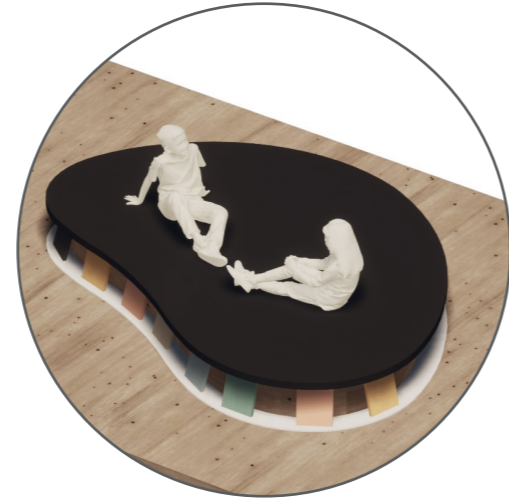
**Adventure to meet book**  
Books showing their cover on shelves look like a book street to invite patrons to journey to literature.



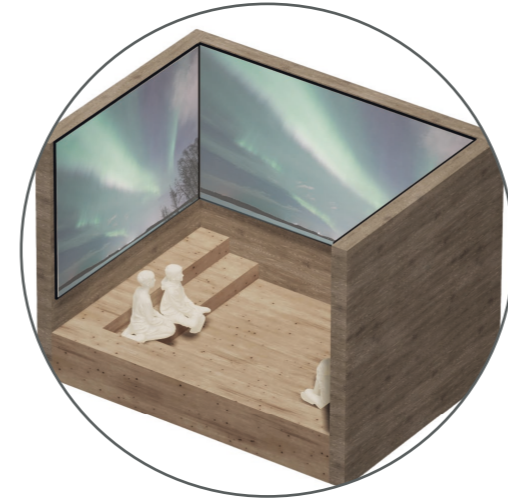
**Borrowing records from other patrons**  
Patrons can see what materials are often borrowed by other patrons by taking photos.



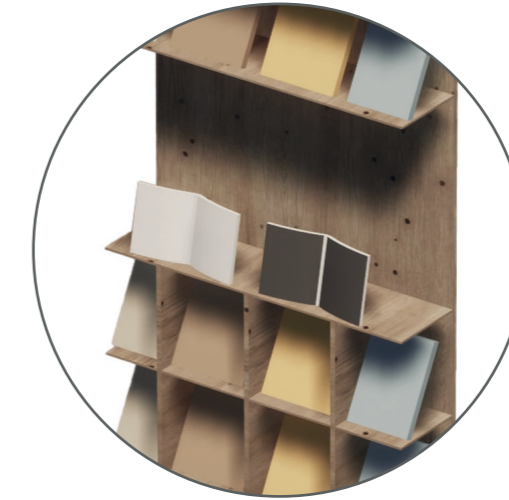
**Ergonomic colonized space**  
Ergonomically shaped holes allow patrons to colonize and read books with comfort and relaxation.



**Small up-step with books**  
Patrons can read books on up-step. There underneath arranges some books.



**Dynamic storytelling room**  
3 or 4 directions of the screen help storytelling with sound and movie affection.



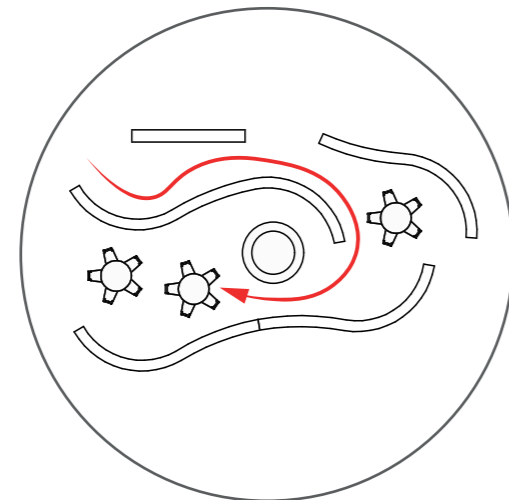
**Contents showing**  
Well-known contents pages are displayed on a shelf for making to interest patrons.



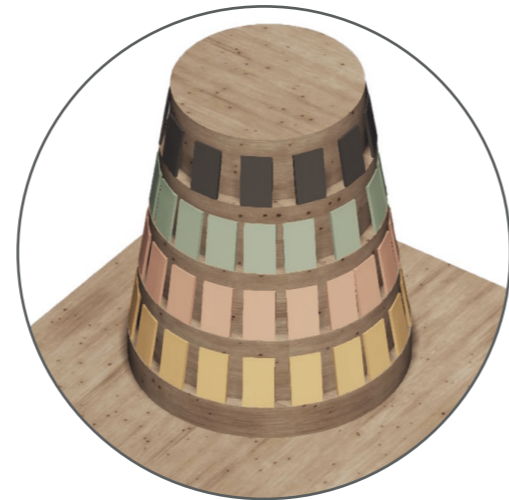
**Outdoor reading**  
Reading books with taking sunlight and feeling the breeze is a good atmosphere.



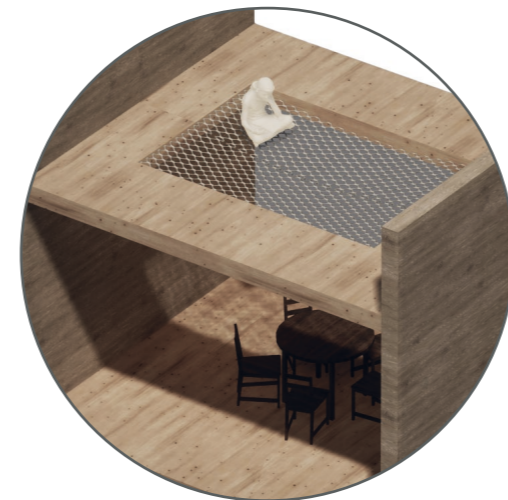
**Small hill for reading**  
Developed shape from "small up-step with books." There are additional steps, and it looks like a small hill.



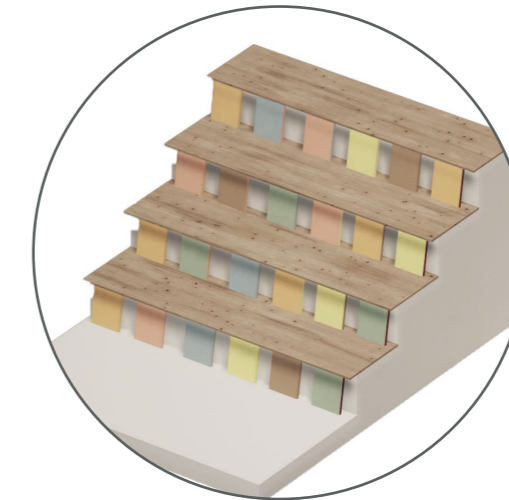
**AI route suggestion for preference**  
AI analyzes personal borrowing records and suggests recommendation routes for user preference.



**Trunk-type shelf for popular**  
Popular books arrange on the trunk-type shelf for beginners in literature.



**Soft floor material**  
Soft floor materials, such as athletic nets, is a fun atmosphere. Patrons can lie down and read books.

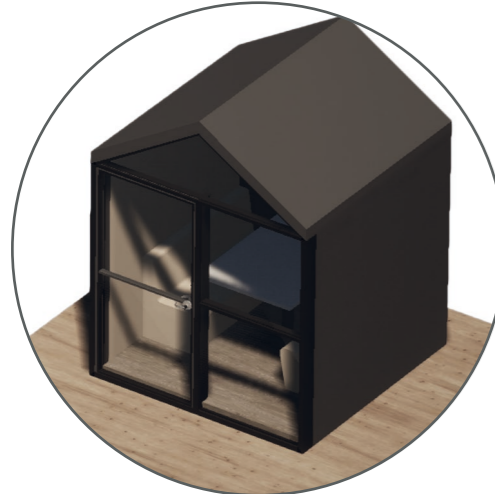


**Bookshelf staircase**  
A seatable staircase can also be a huge bookshelf and attracts patrons.

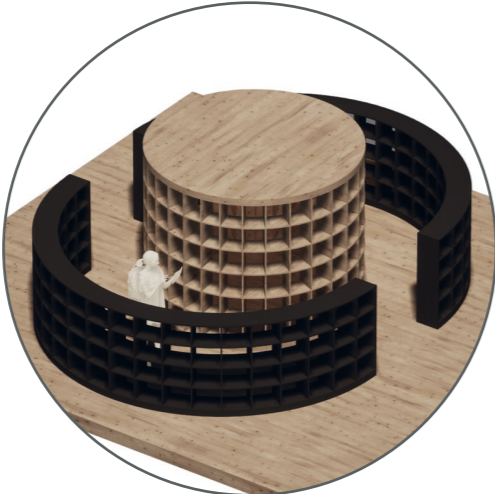


**Large book**  
Large books can be more accessible for all generations and give a fun experience.

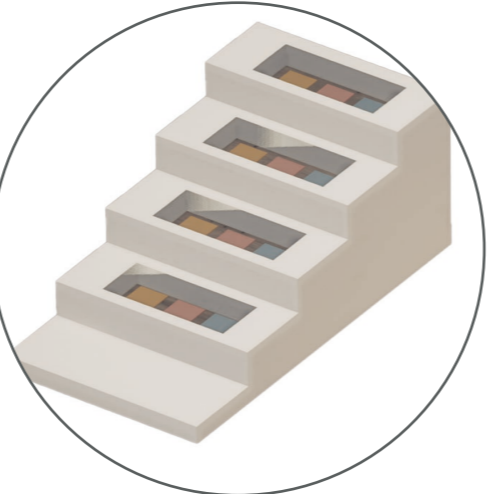
4-4 Architectural planning



**Small cabin for reading and working**  
The small cabin allows a patron to be isolated to concentrate on reading, working, and studying.



**Walkable reading area**  
Some patrons would want to read books with walking. This area manages safe reading and walking.



**Tread showcase**  
Some books are seen from the tread of the staircase, and books can take from the rise.



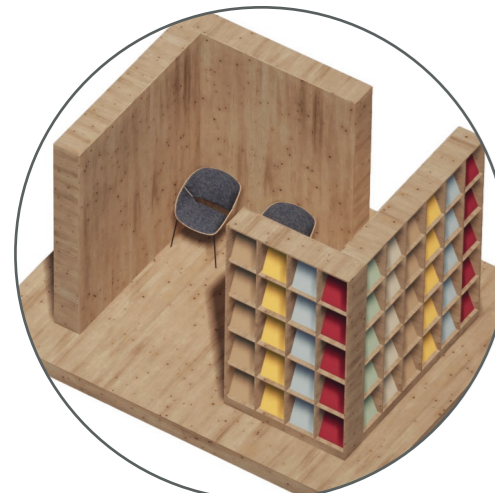
**Visibility of activities**  
Visibility of other activities attracts and invites patrons to new challenges.



**Mutual sight direction**  
By using level gaps, sight direction avoids crossing directly.



**Stroller parking**  
A Stroller parking place is a must to put for parents or family patrons with small kids.



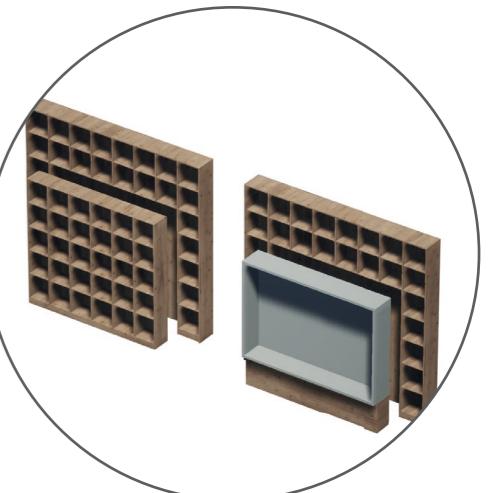
**Semi-isolated by bookshelf**  
Small semi-isolated spaces arranged by bookshelves produce comfort.



**Open void space for space integration**  
Open void space can integrate all floors to make one atmosphere and be easy to see from everywhere.



**Territory without wall surrounding**  
The space made by a canopy or hollow creates a different atmosphere than an isolated room.



**Exchangeable bookshelf and seating**  
Depending on the patrons visiting mount or total material mount, the bookshelf and seat are exchangeable.



**Semi-indoor space**

As part of the inside space, it can be a seamless atmosphere from the outside when windows are open.



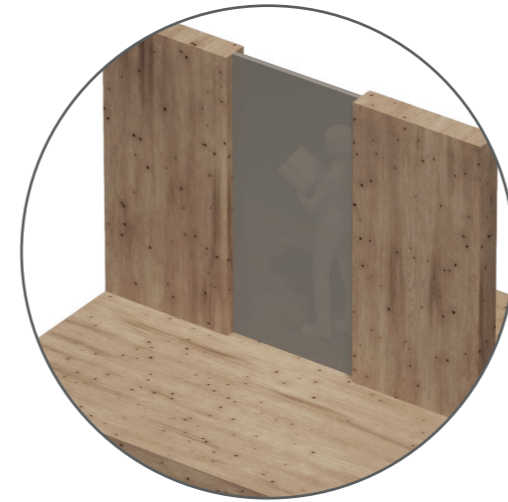
**Semi-outdoor space**

Roofed outside space, patrons can be there regardless of weather conditions.



**Visibility for only kids scale**

Kids are interested everywhere. Lower-position glass allows only kids to see what is happening on the opposite side.



**Transparency adjustability**

Usually clear glass. When a patron is inside, the material turns on foggy glass.



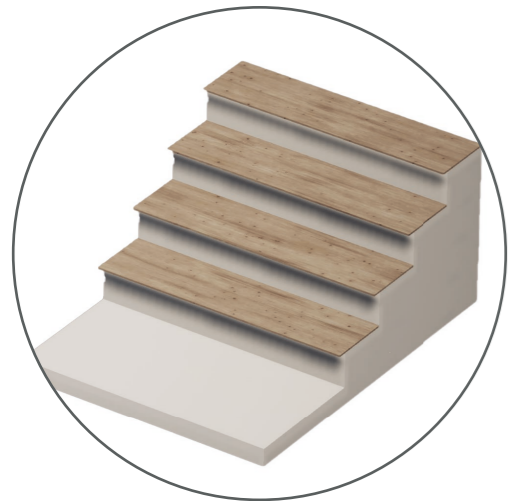
**Fluent bookshelf shape**

Curving the bookshelf invites patrons to go next section.



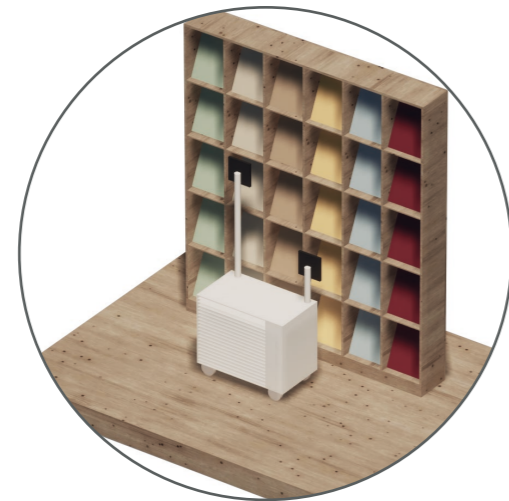
**Inside activity visible window**

Separated areas' activities can be seen through windows for all generations.



**Seatable staircase**

A seatable staircase with wider treads allows for holding a lecture or orientation when a library has events.



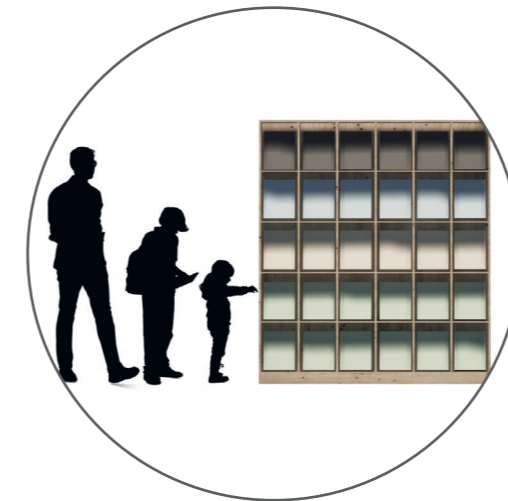
**Material management robot**

The management robot scans material positions and renews a map in the apps during library closing hours.



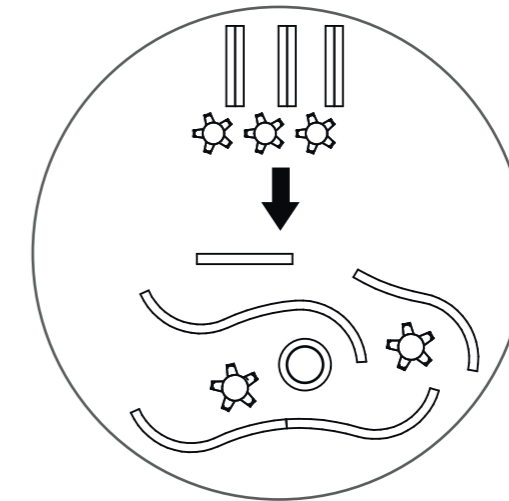
**Food allowed zoning**

For keeping materials clean, food allowed, and restricted areas are needed.



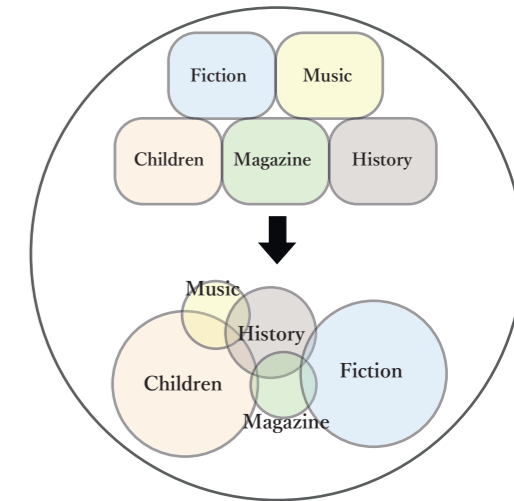
**Mixed-generation book arrangement**

By using tall difference, a bookshelf can arrange for all generations; a lower place for kids and an upper place for adults.



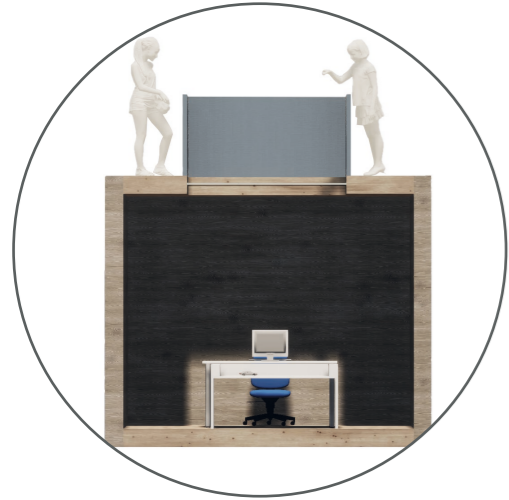
**Freestyle shelf arrangement**

Depending on the library, there is no need to put traditional bookshelf arrangements. It can be more flexible.



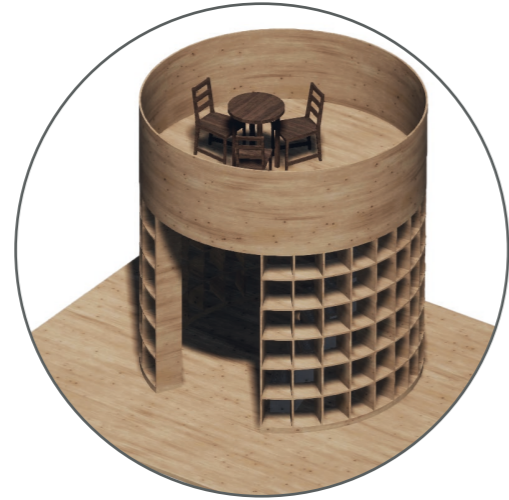
**Mixed, mutual genre zoning**

Free genre zoning would be possible by mixing freestyle shelf arrangement and AI placing management.



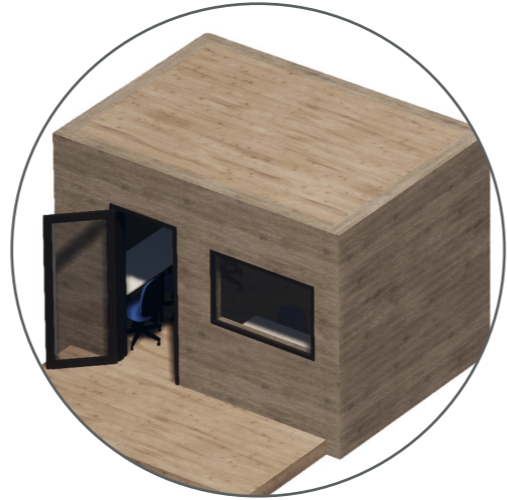
**Vertical visibility**

Using glass or athletic nets as floor materials can produce a vertical connection between up and down stairs.



**Higher space for scenery**

A little higher place can get overviews of library spaces. The connection between slabs is a mini-staircase.



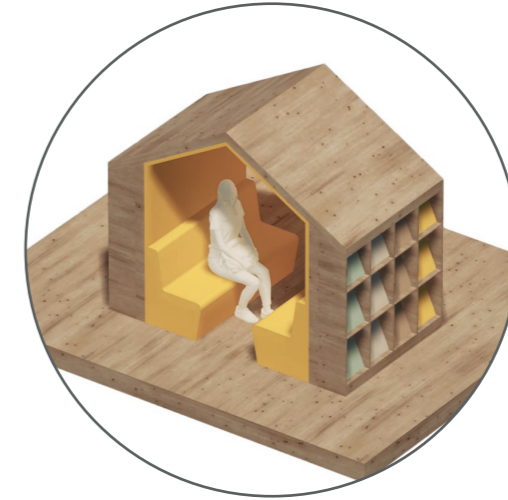
**Separated quiet area**

When a library is an open plan and open atmosphere, it should have a separate quiet area for reading and working.



**Interior greenery**

Interior greeneries make a space more refreshing and lighter atmosphere.



**Roof under the roof**

This roof system makes space to suit the human scale when the inside space is too high.



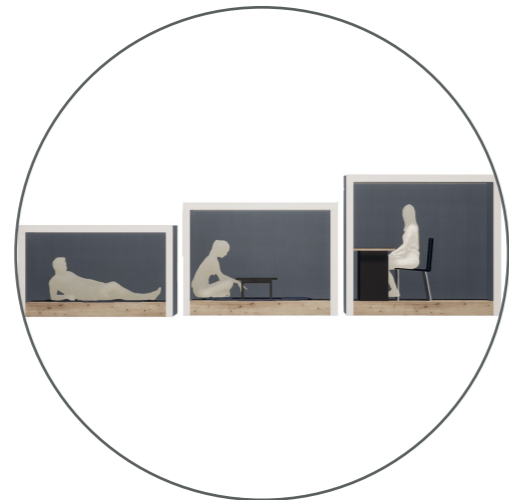
**Individual cabin for phone and work**

The individual cabin is convenient for phone calls or meetings in a library space.



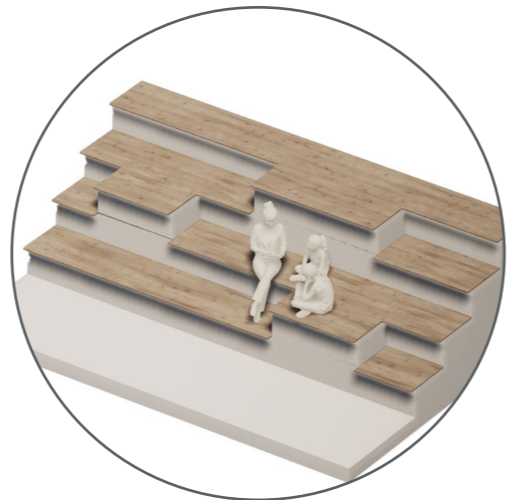
**Seamless floor arrangement**

Seamless-arranged floor levels provide to avoid exchanging sight directions for each other.



**Different heights of posture**

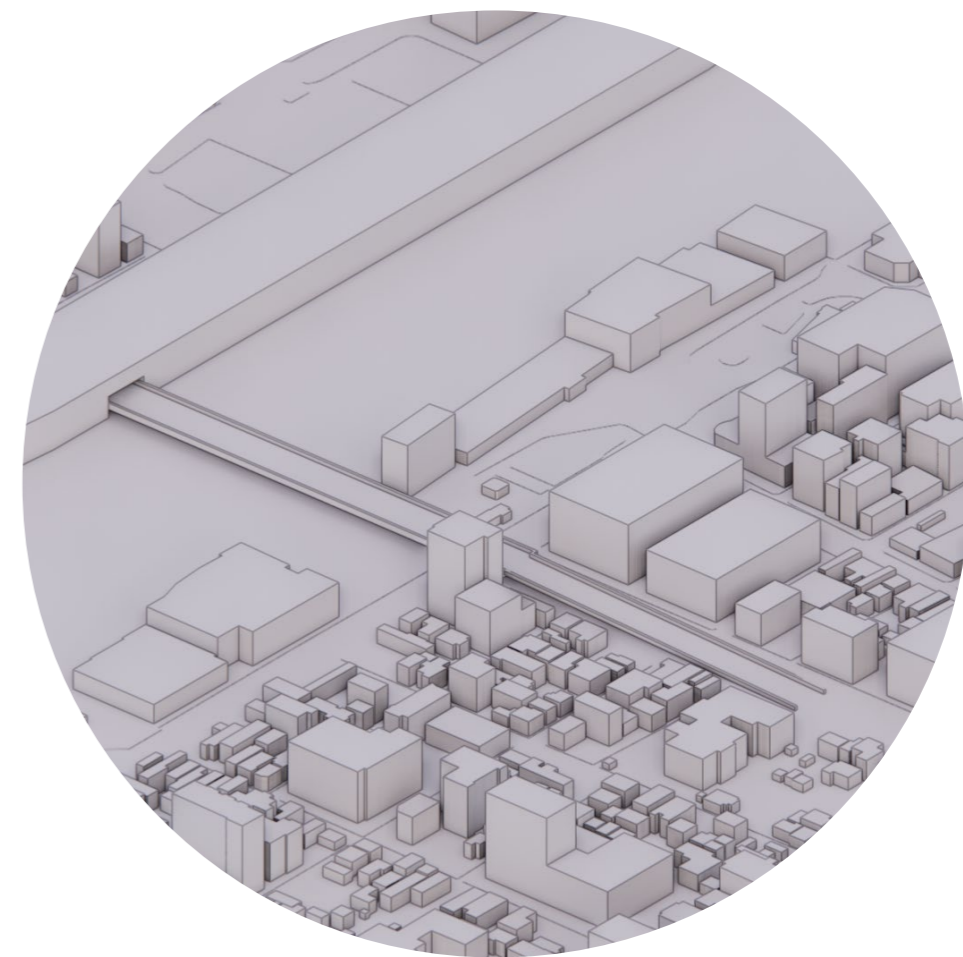
Different height can provide different postures for activities. Patrons can select their preference for their comfort.



**Wider treads on a staircase**

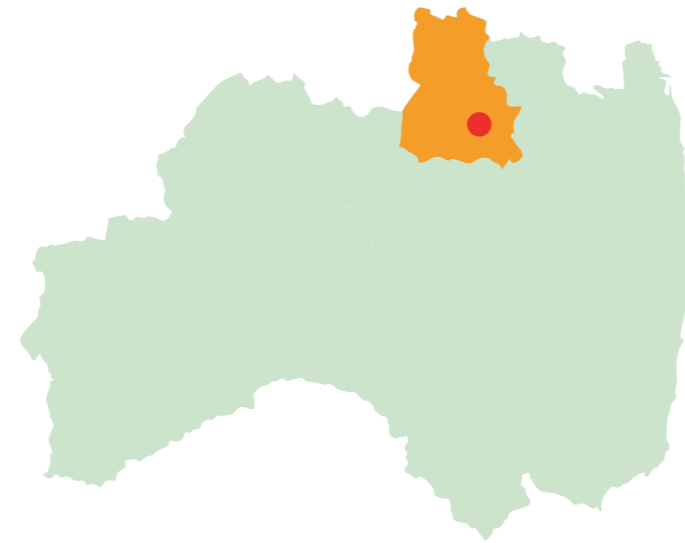
Wider treads can provide diverse postures when patrons are on the staircase

## 5. Urban Context





**Japan Fukushima Prefecture**



**Fukushima City**

## 5-1 Design site - Fukushima City, Fukushima Prefecture, Japan -

The design site is in Japan, Fukushima City in Fukushima Prefecture. Fukushima prefecture is located in northeast Japan (Tohoku region in Japanese), and Fukushima City is a middle-scale city in Japan with a population of 294,000. The geography of Fukushima City is the basin where mountains surround it in all directions. There is a significant difference in temperature between summer and winter, and the four seasons are clearly defined. There are a lot of sunny days in the spring. Hot and highly humid days continue in the summer after the rainy season. There are sunny and rainy days because of the typhoon season in the autumn. And sunny days continue in the winter with little snow. You can feel clear seasons with beautiful plants and sceneries like cherry blossoms, plum trees, and leaf color changes. (Fukushima City, 2022)



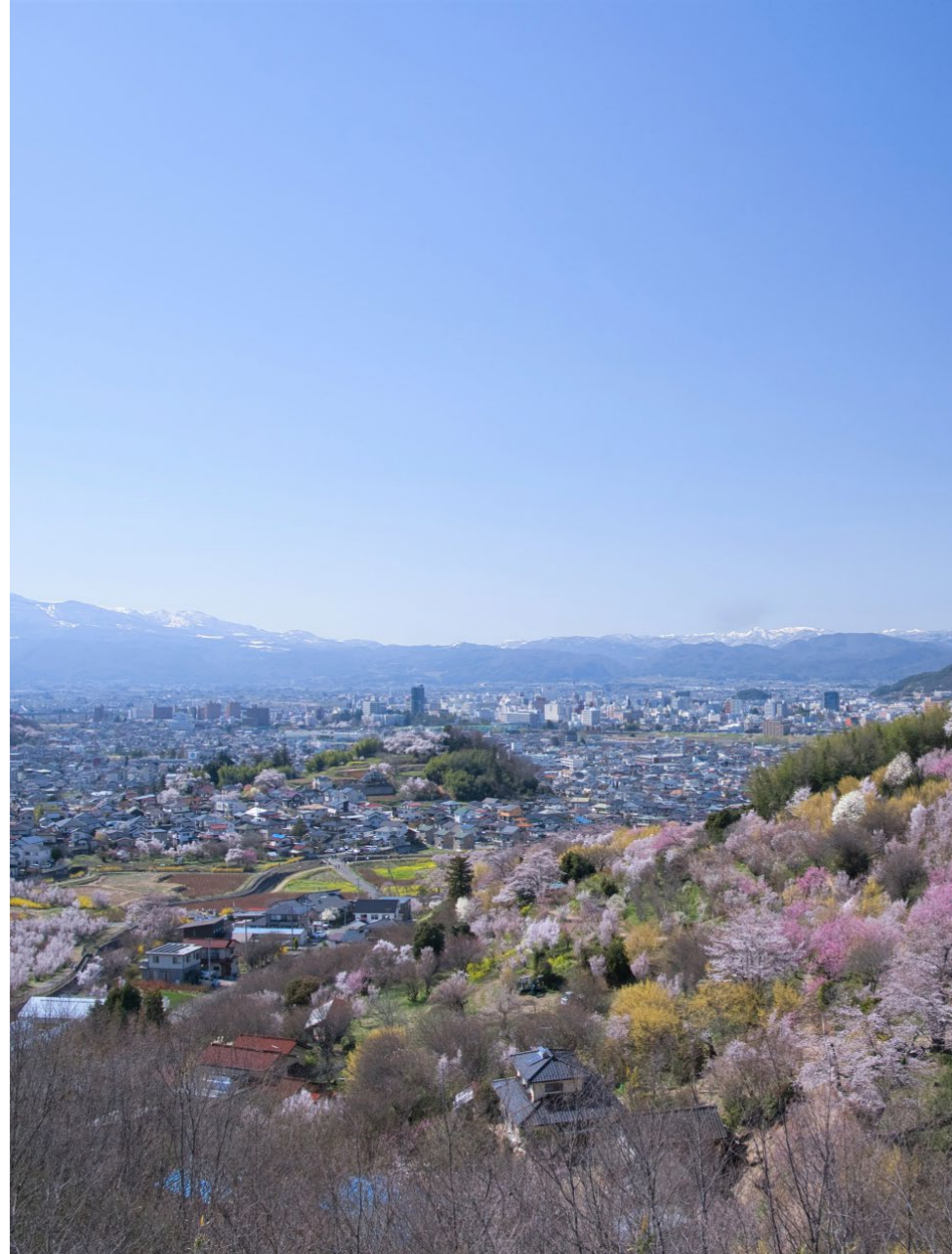


Fig 1. Fukushima City in Spring

Photo credit @ Masamu



Fig 2. Fukushima City in Summer

Photo credit @ Erubons



Fig 3. Fukushima City in Autumn

Photo credit @ Doridori

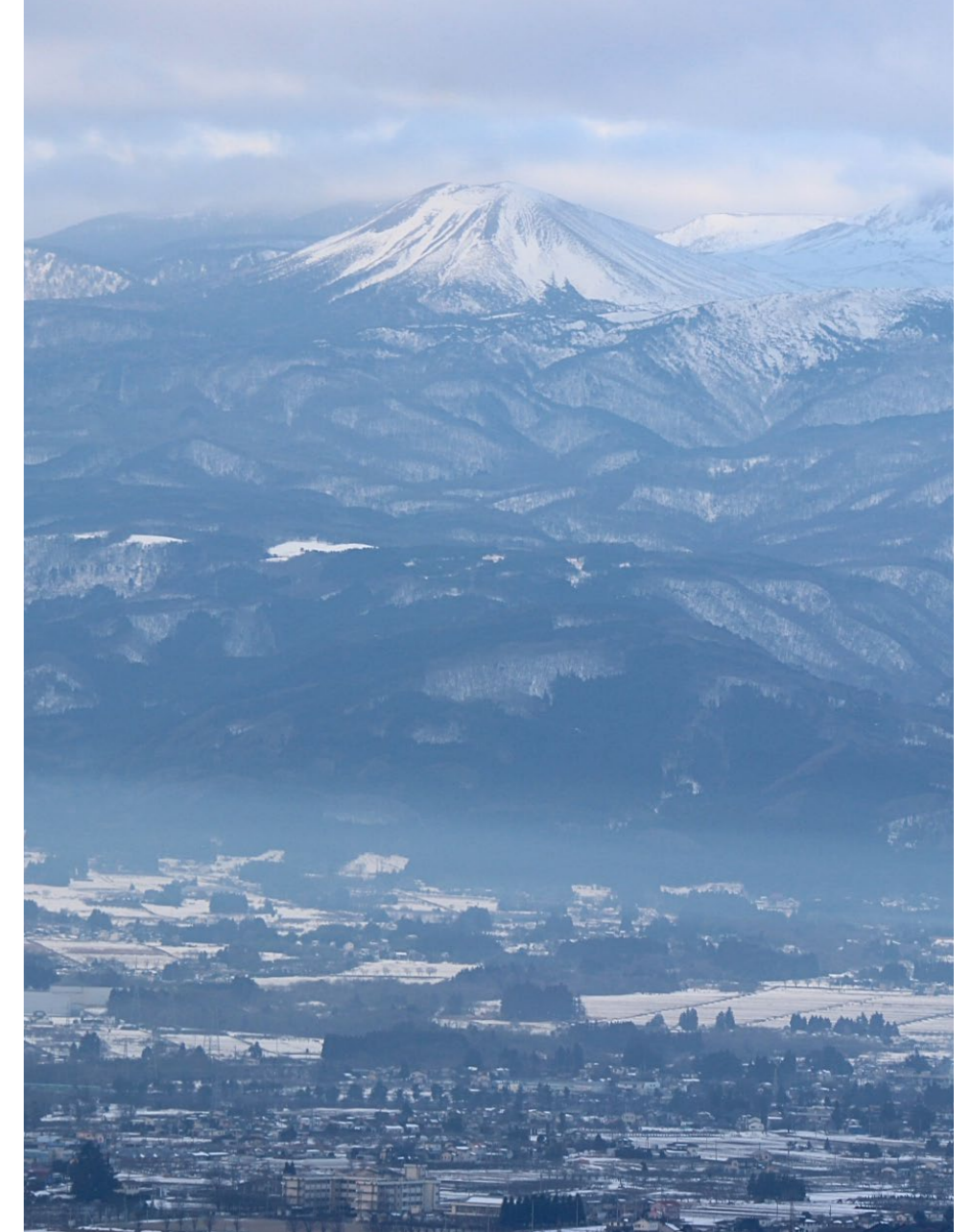


Fig 4. Fukushima City in Winter

Photo credit @ Punchra

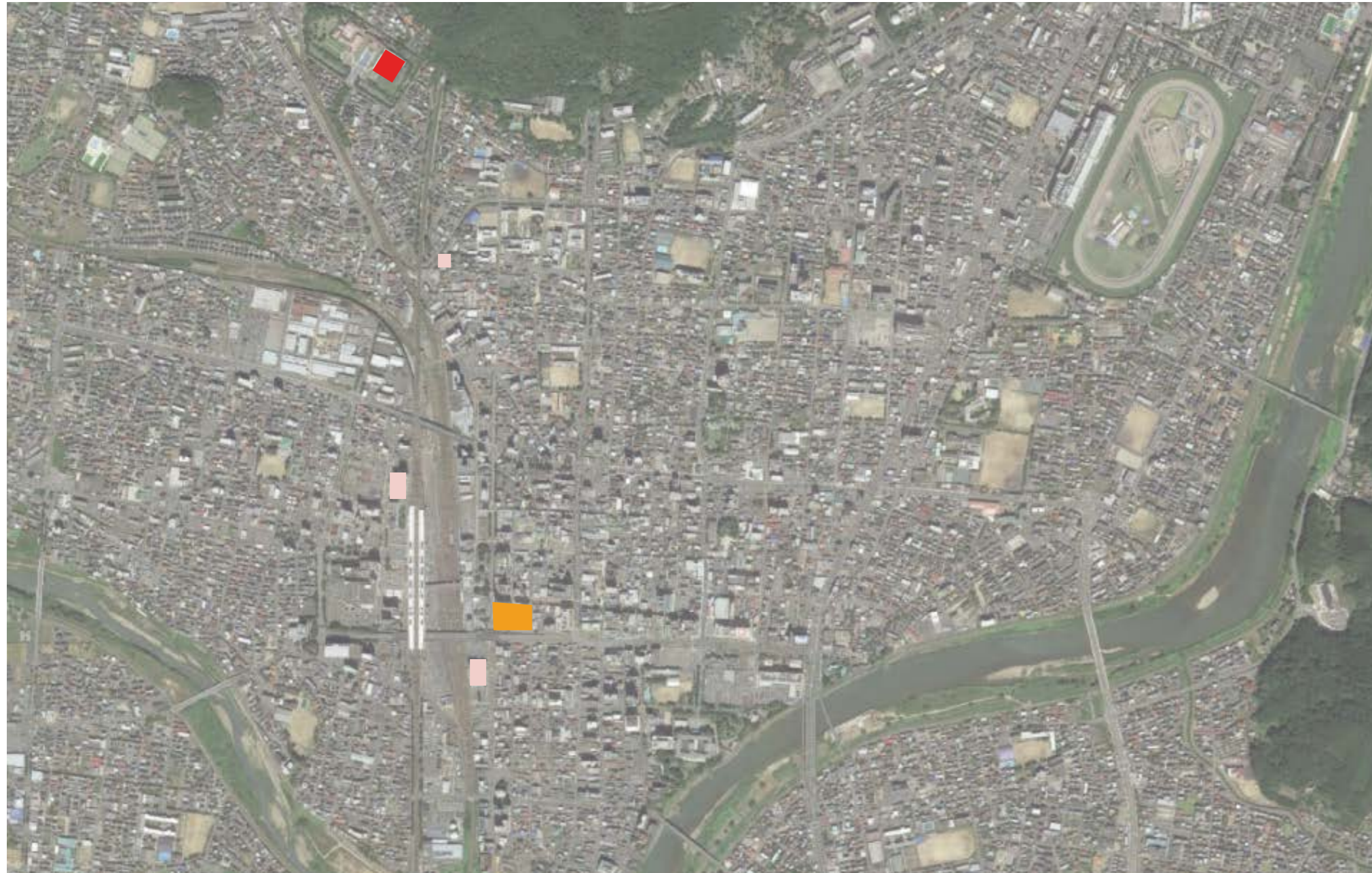
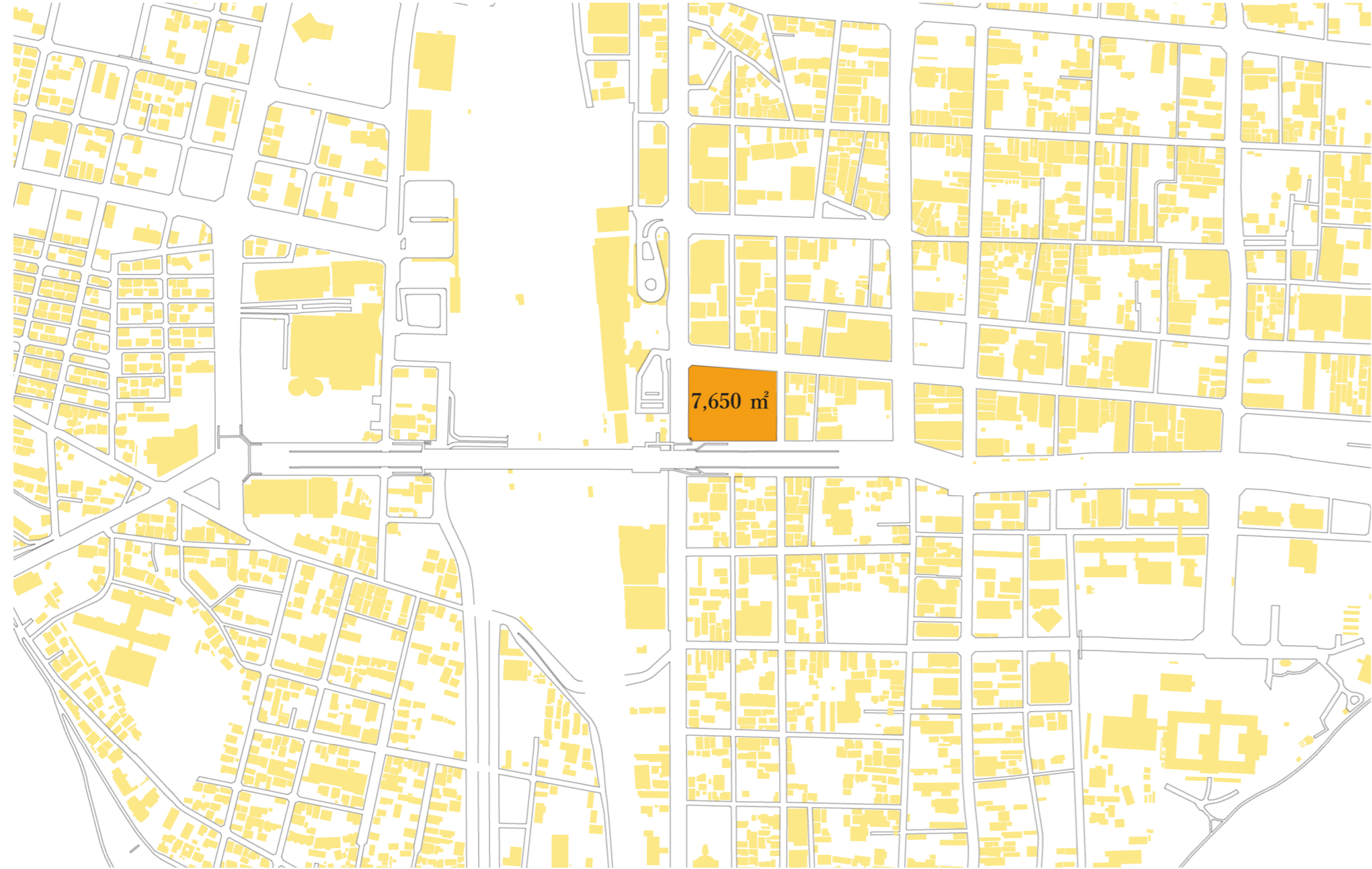


Fig 5. Fukushima City satellite image

New main library (site) ■ Branch public libraries ■ Prefectural library ■

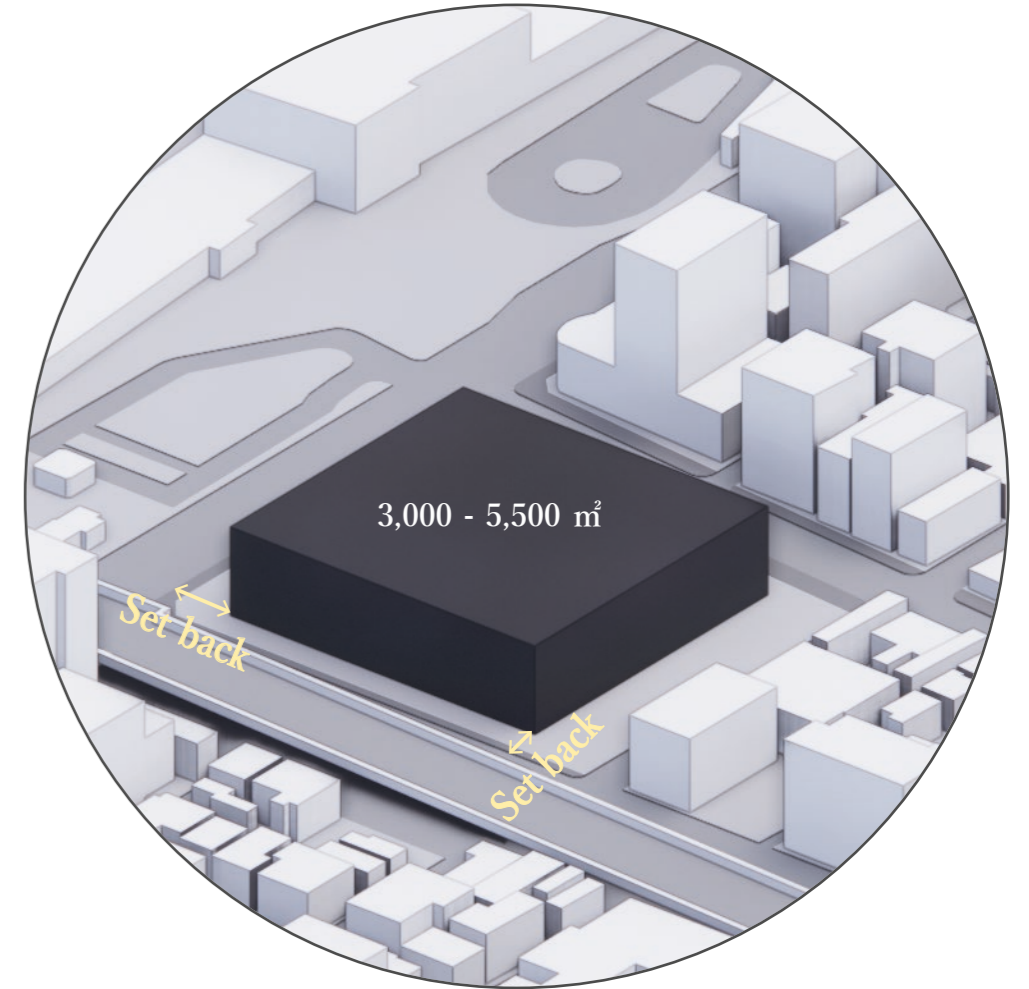
## 5-2 General information of public libraries in Fukushima City

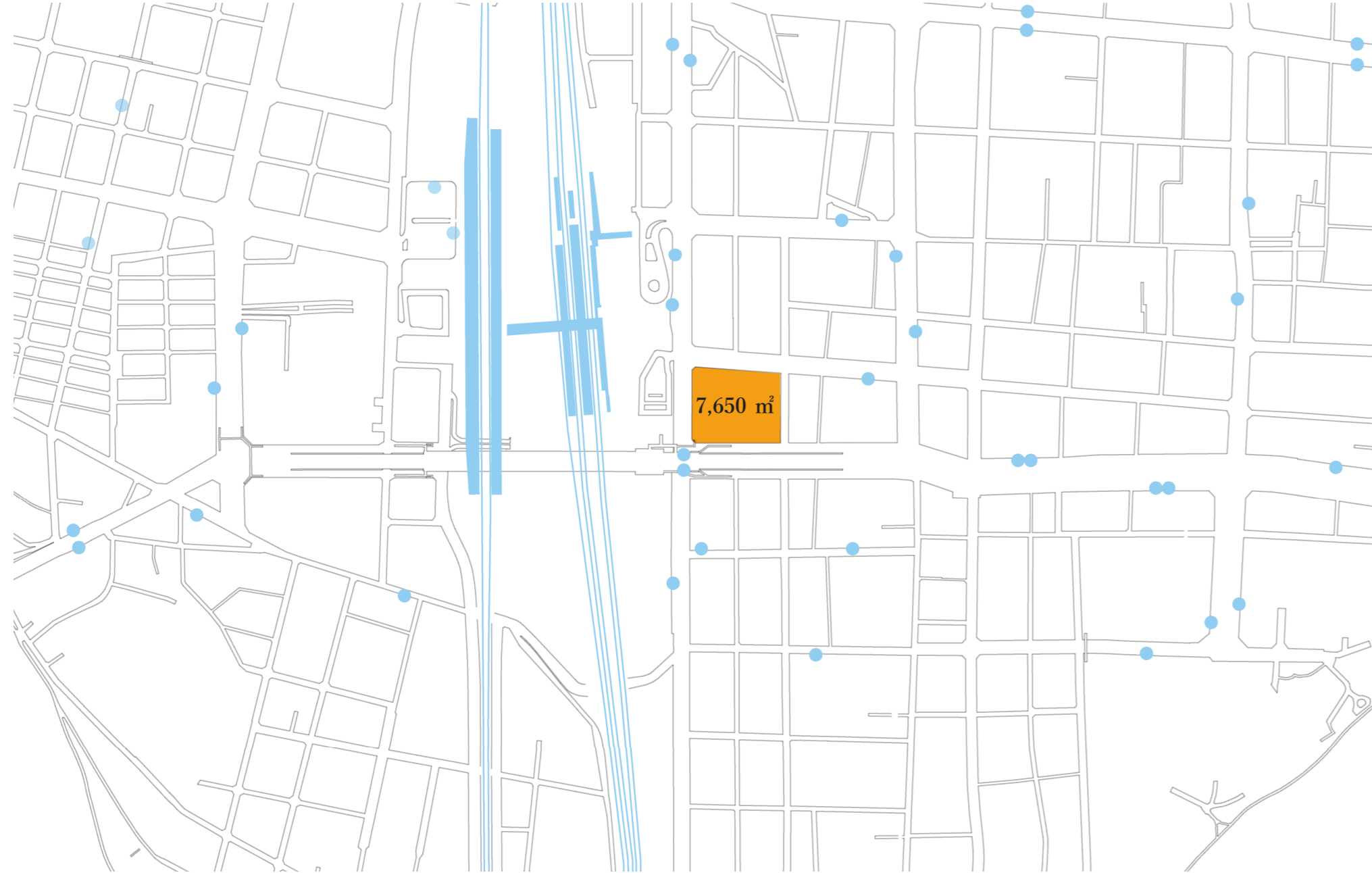
Fukushima City is planning to construct a new city library in front of the Fukushima train station (popping up with orange) because the current building, which was completed in 1958, is too old now. Around the new site are three branch libraries (popping up with pink) and Fukushima prefectural library (popping with red), the biggest library in Fukushima prefecture. Considering with Fukushima prefectural library, I think the new city library can focus more on how it connects patrons and literature instead of stacking thousands of materials. There would be suitable because of different roles; the Fukushima prefectural library can save a lot of materials, and the new city library is more experience based. And there are two branch libraries near the site, so it would be possible to exchange materials in cooperation.



### 5-3 Surrounding building size

In Fukushima City, there are various sizes of buildings, from small sizes, such as houses, restaurants, and shops, to huge sizes, like shopping malls and multi-office buildings. Considering the prosperous location in front of the train station and its function as a public library, the new city library building can be large, but the building should be set back a few meters considering the impact on the surroundings. It should avoid building such a massive wall with over-scaled height. For these reasons, the building would become large, like 3,000-5,500 m<sup>2</sup>, without car parking space, but not high, like 2-4 stories. The setting back area can create enough wide pedestrian space and become a buffer zone between the city and the building.

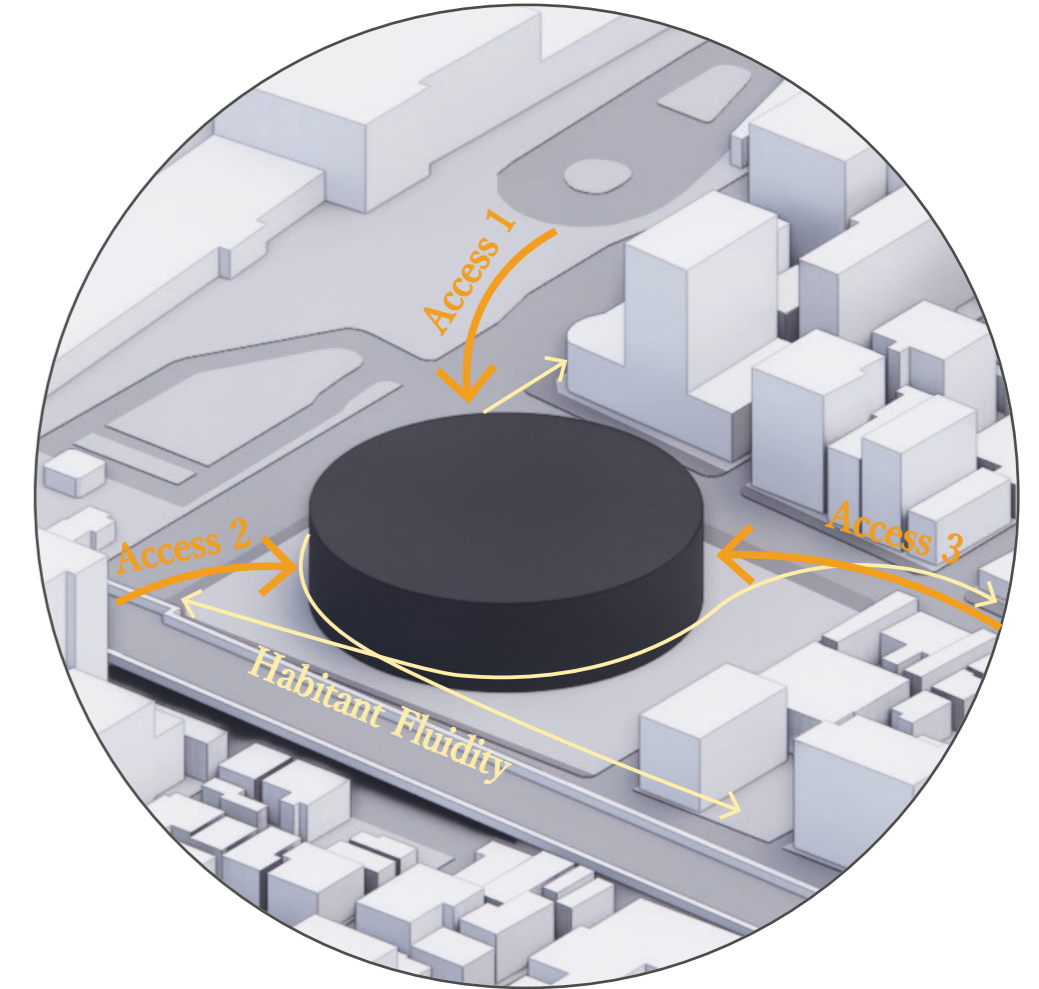


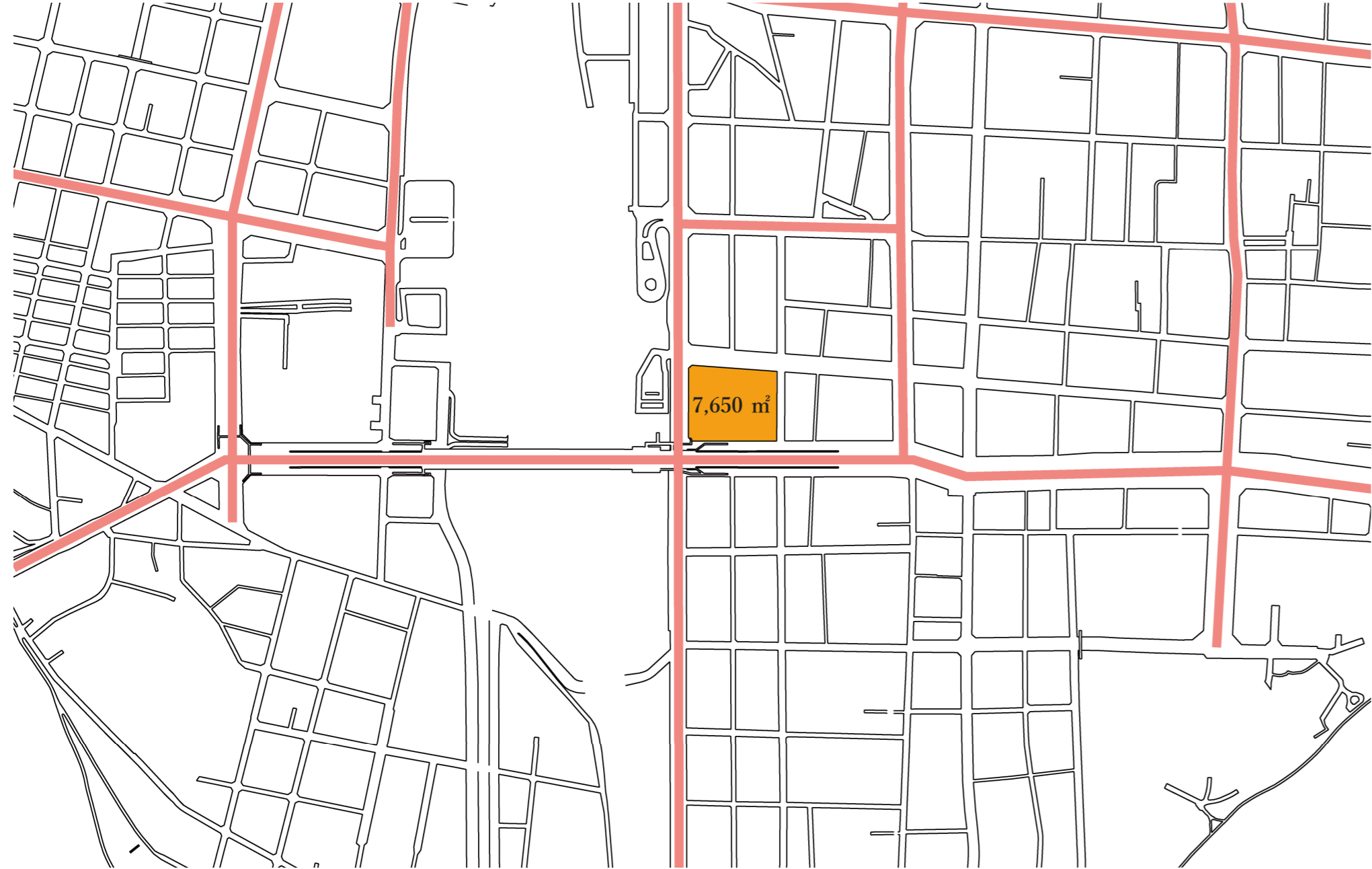


## 5-4 Public transportation and fluidity of habitants

Near the design site, there are two train stations. One is the station for sprinter and Inter-city trains which connects close cities, and the other is the station for bullet trains which comes from the capital: Tokyo. Since the site is in front of the station, many people are expected to come and go from the station area. In addition, some people also seem to come and go around the site since there are many bus stops (blue points on the map). The site is located cross-section between train stations and bus stops according to the public transportation contexts. Therefore non-corner shapes, such as circle-shaped buildings, would be suitable for this site to promote smooth fluidity for local habitants. People are also allowed to stop at the new library in a short time.

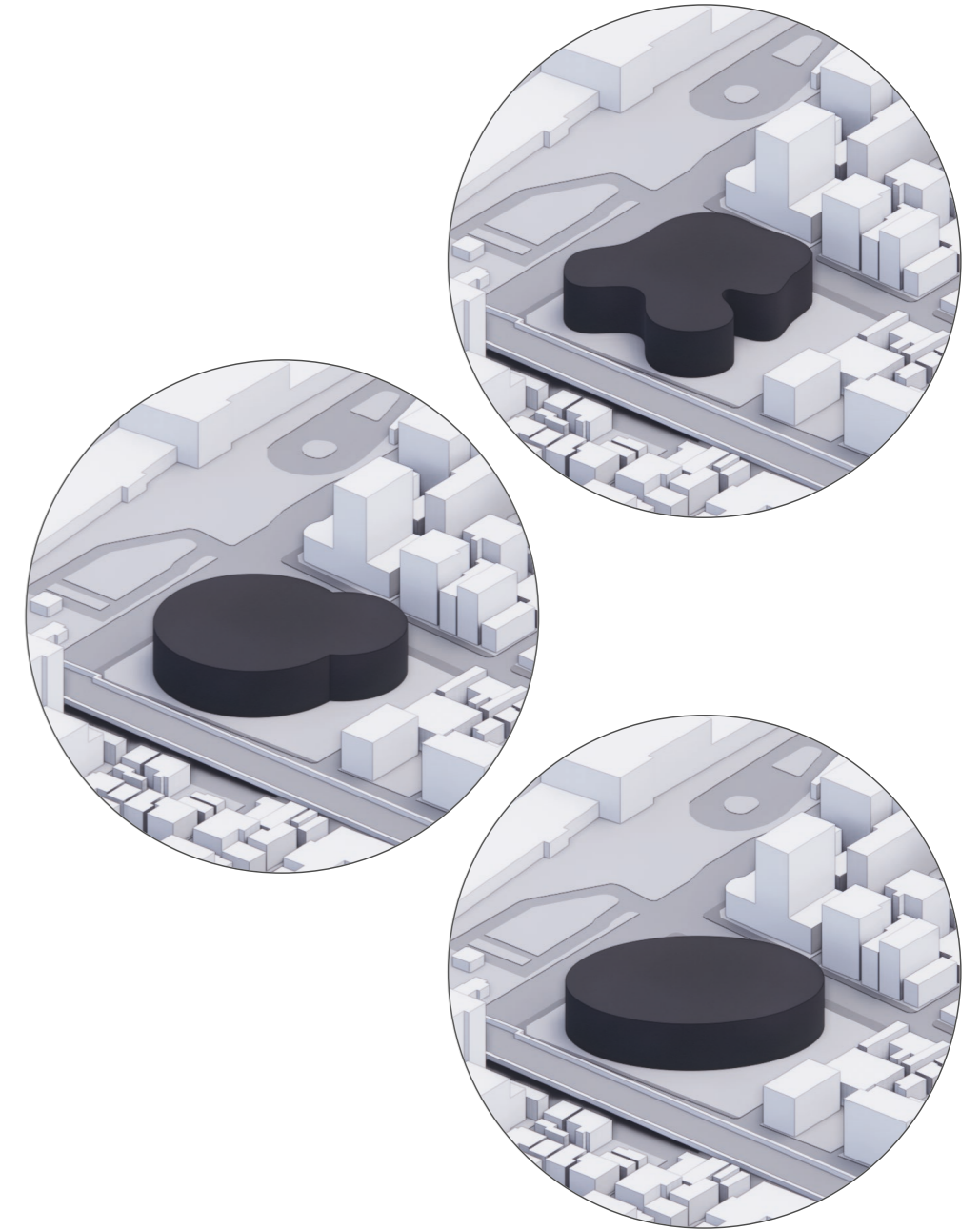
Whether or not people stop by the library, the new library is recognized as the identity of the Fukushima City

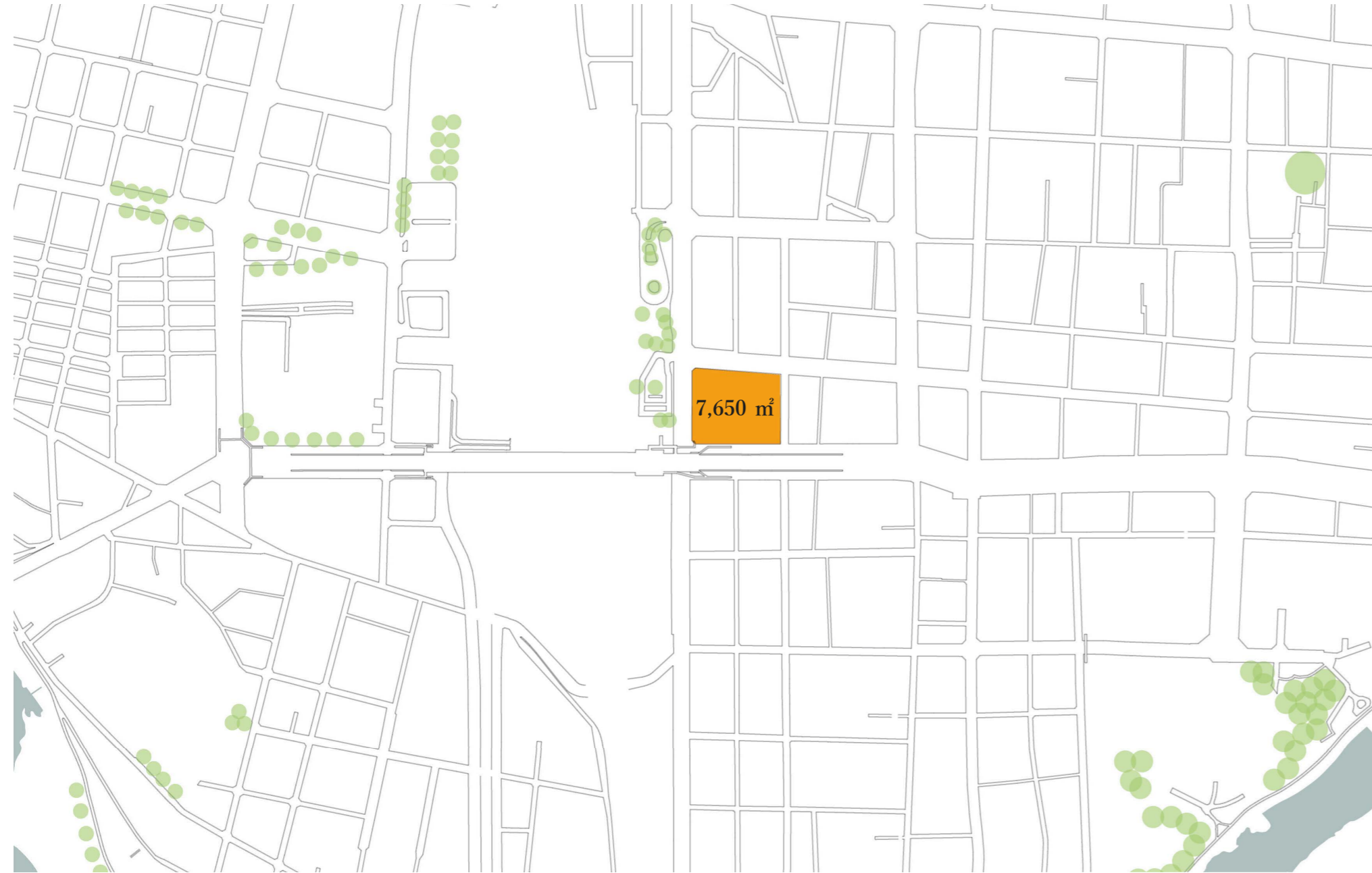




## 5-5 Major roads and site appearance

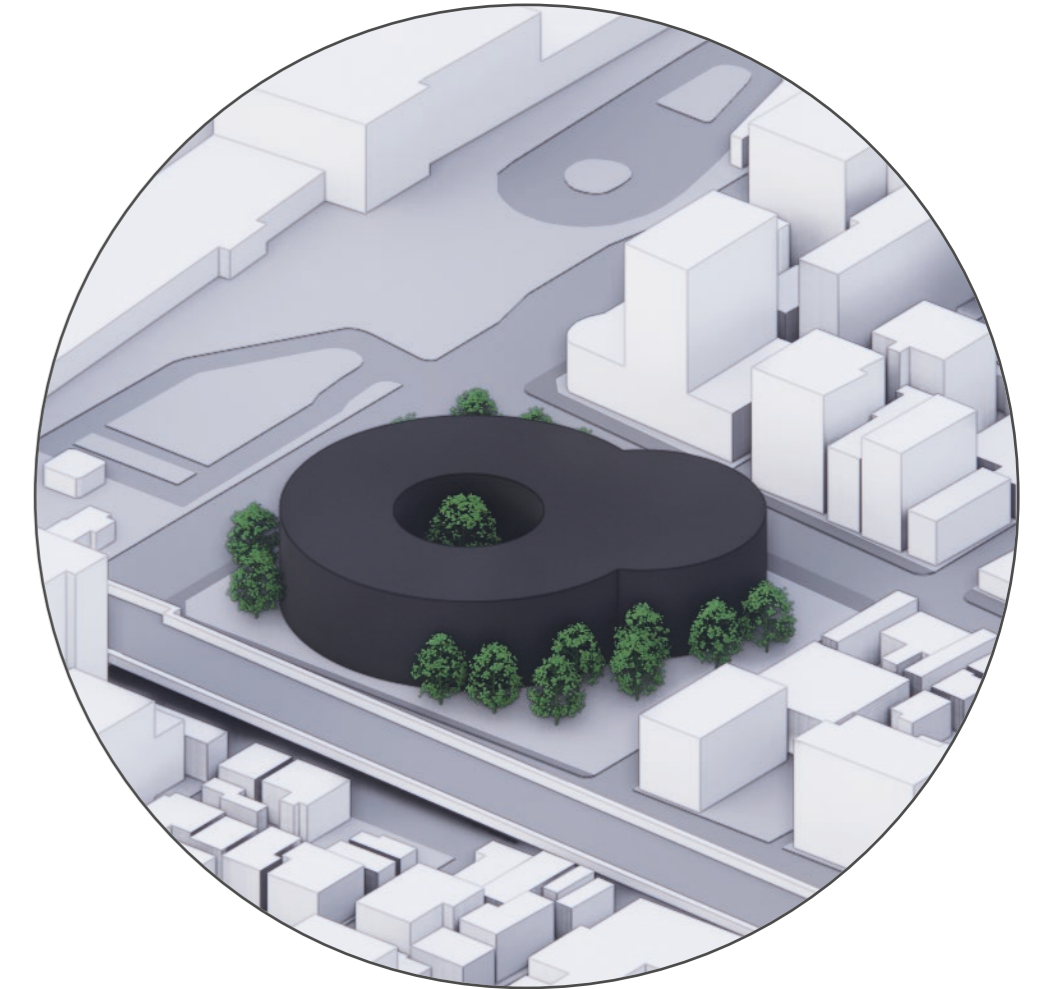
Red lines show major roads around the site, and a short bypass with 6m height is located right south. There is also a main road between the site and the station. How the building looks on these roads seems important because many cars, buses, and people are going through it, and they see its appearance. On the other hand, how patrons see roads from the inside is also important because of taking as good as possible sceneries. Seeing landscapes or greeneries would be more important than cars going on the road. Building shape needs to have a consensus between the appearance of streets and sceneries from the inside.



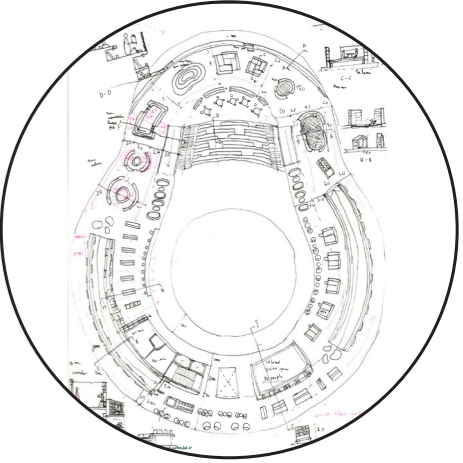
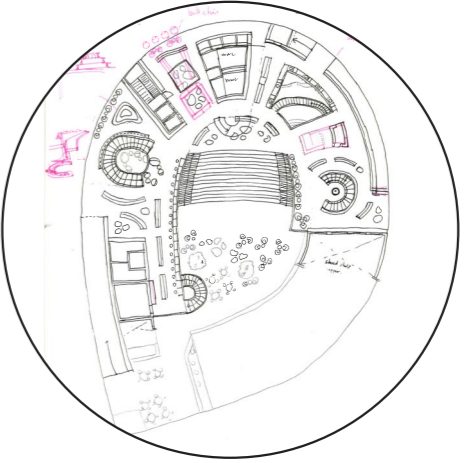
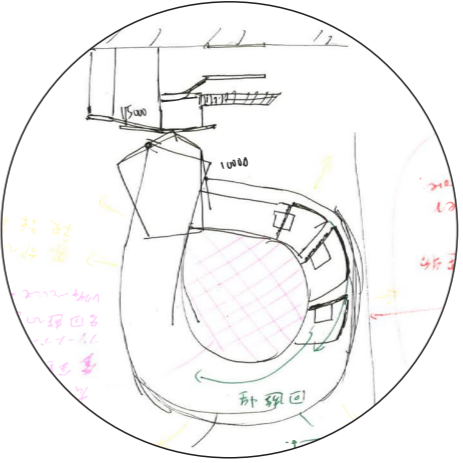
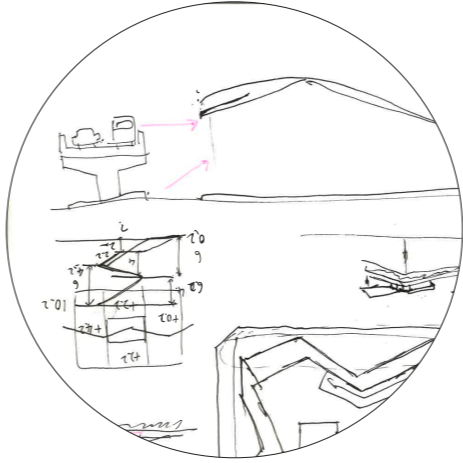
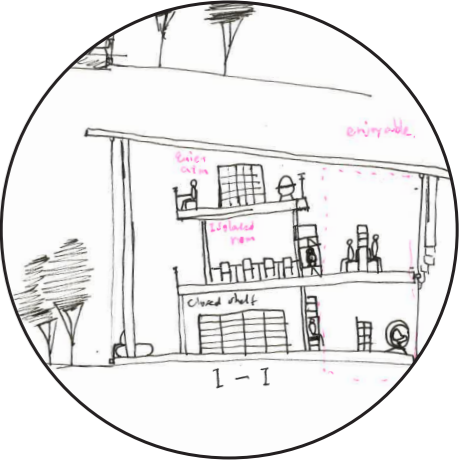
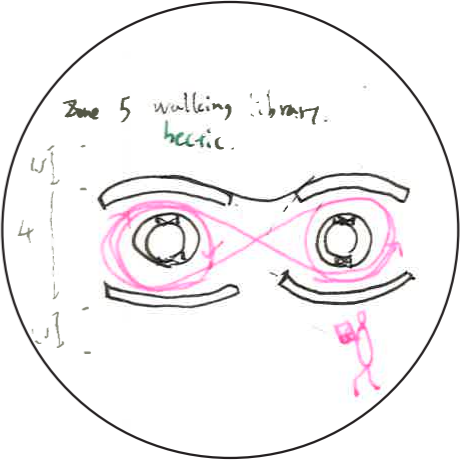
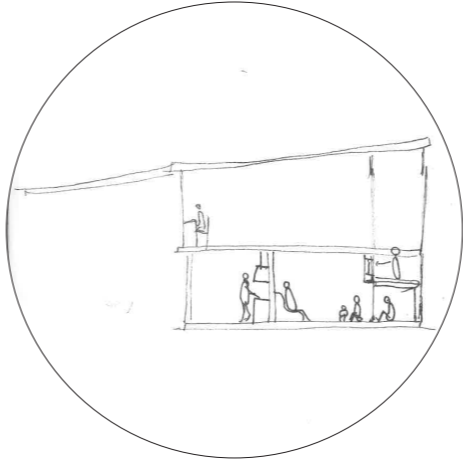


## 5-6 Surrounding greeneries

As I told at the beginning of this chapter, Fukushima City is a basin geography and is entirely surrounded by mountains. There are many natures and greeneries on the edge of Fukushima City, but few greeneries in the city center. The map showing green colors is greeneries. Some trees are in front of the train station and the prefectural office, but few greens are seen in other areas. By planting as many greeneries as possible on the new city library site, which is a cross-section between the fluidity of people, they can experience nature daily by walking or going through the site. And greeneries can provide better sceneries than just an urban atmosphere. Arranging with the courtyard would be more effective to feel greeneries for the libraries because patrons can see plants from everywhere inside. On a sunny day, patrons can read books outside.



# 6. Architectural Integration



## 6-1 Interior development - How interior gimmicks interrelate with each other -

In Chapter 4, I mentioned the idea of interior gimmicks and the variety of interior gimmicks in three sections, Activity experience, Encouraging environment, and Architectural planning. Some of them can be used as a single interior gimmick, and others are more effective when connecting with other gimmicks. In this section, I mention how interior gimmicks interrelate with each other and how to develop them as the interior.

As a first phase, I sketched 3d images and sections by imagining scenes in the public library that how patrons experience it with my design concept without considering any dimensions. For example, how patrons meet books when walking through the bookshelves, how they start to read books after taking them, how they know activities provided by the library while walking through, how they see each other, and so on. I could understand which interior gimmicks would have the possibility to interact with each other by thinking this way.

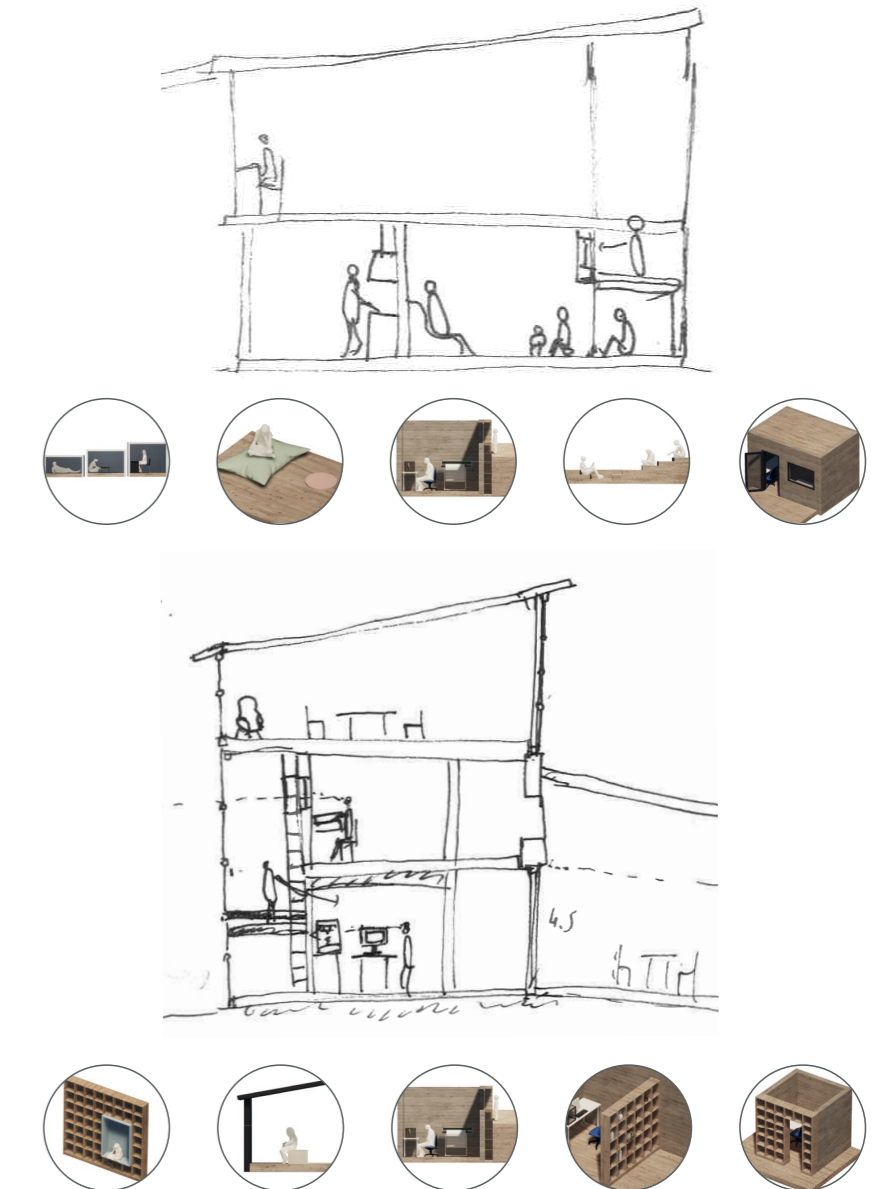
In the second phase, dimensions are roughly determined considering the architectural shape derived from urban contexts. The sections are drawn again with considering the measurement of corridor width with furniture, seat attached bookshelf width, room size for maker space, slope width and length, etc. Knowing rough interior dimensions also helps in determining building dimensions. From this phase, integration between interior gimmicks and urban contexts starts to shape architecture.

## Combination of interior gimmicks

The image section on the right shows how the interior gimmicks combine with each other. The first point is how patrons see other patrons' activities while walking through vertical connections, a staircase, or a slope. While exploring on a slope, patrons can see the action in a storytelling room.

The second section sketch shows the vertical interior gimmick connection from 1st to 3rd floors, circulation, and open space. On the slope, there are bookshelves with seating holes, and while going up on the slope, patrons can see other functions, such as maker space through the window.

Thinking of interior space with sections also promotes creating seamless views from the open space to the outside.

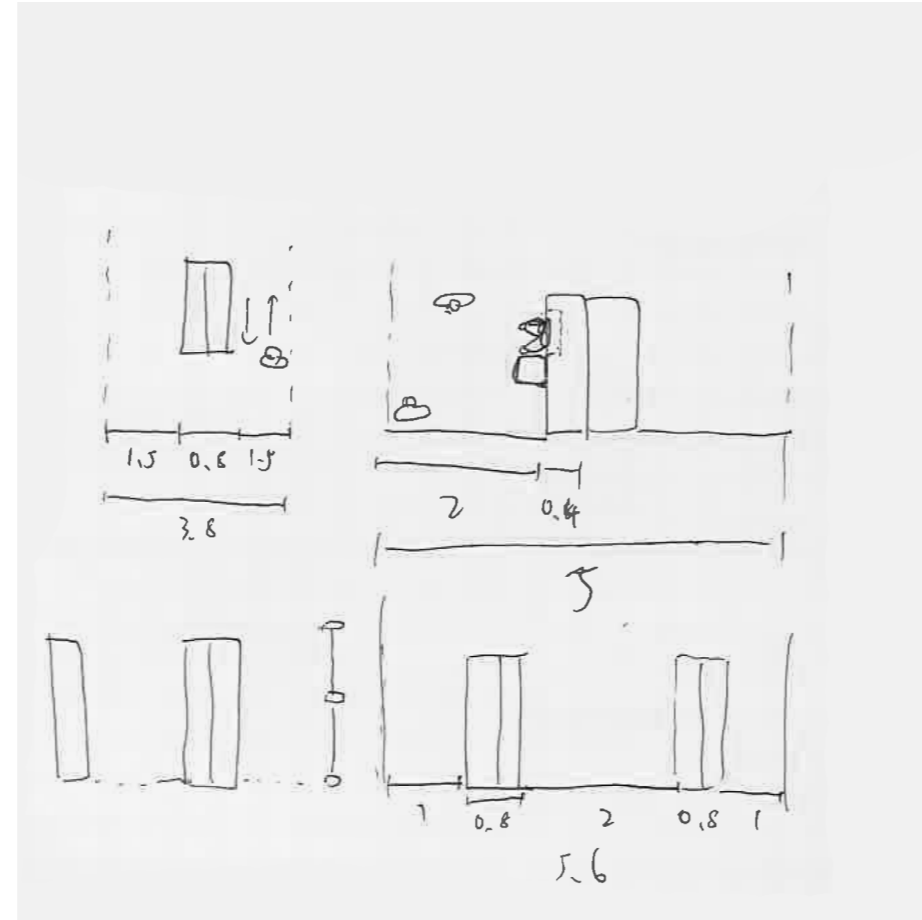




## Checking dimensions

After sketching ideas, their dimensions must be checked to connect the building design. The sketch on the right shows how many measurements are roughly needed in three shelf patterns. The pathway width, 1,500 mm, seems to be enough with regular bookshelves, but when those bookshelves have seatings, the width needs 2,000 mm at least for going through 2 people and a person sitting on a shelf. So with rough calculation, 5,000 mm width is required for two lines on pathways and two seatable bookshelves. Using a bit wider dimension of 5,600 mm, two lines of regular bookshelves and three lines of ways can be organized.

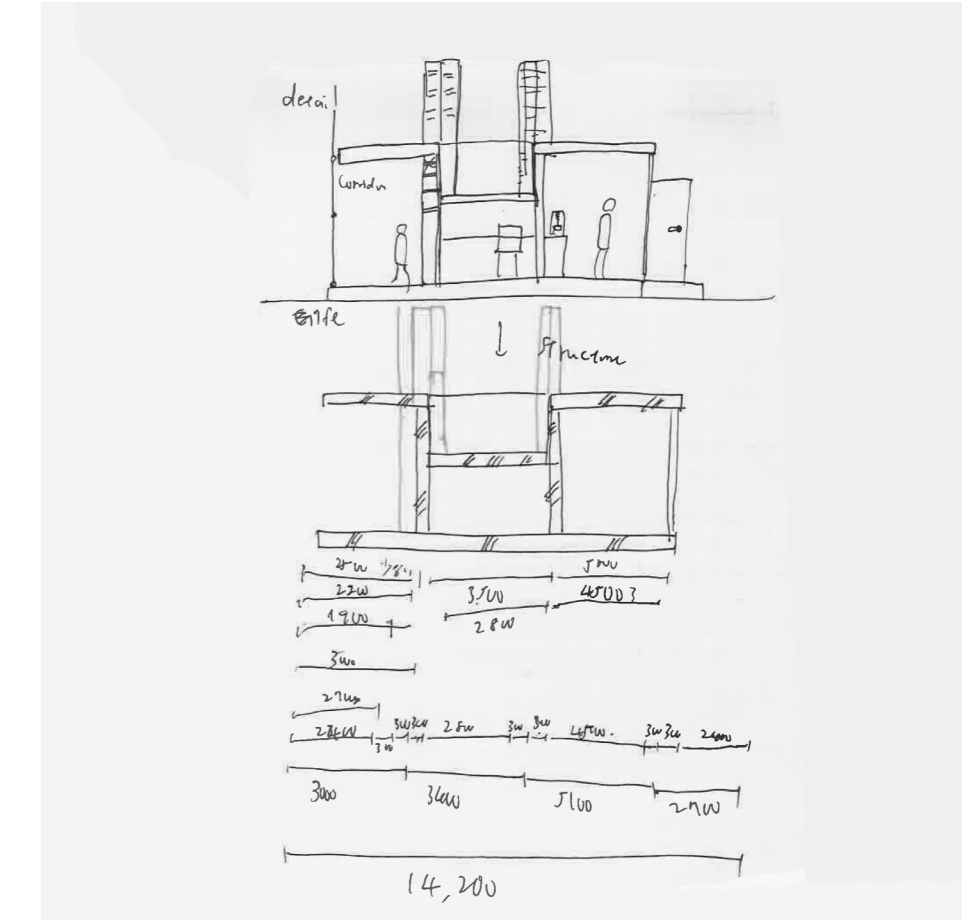
This dimension also becomes the reference dimension when organizing the building scales on the other side.



After developing the building ideas, the measurements have to consider more precisely. These dimensions become the basic dimensions of the final plans.

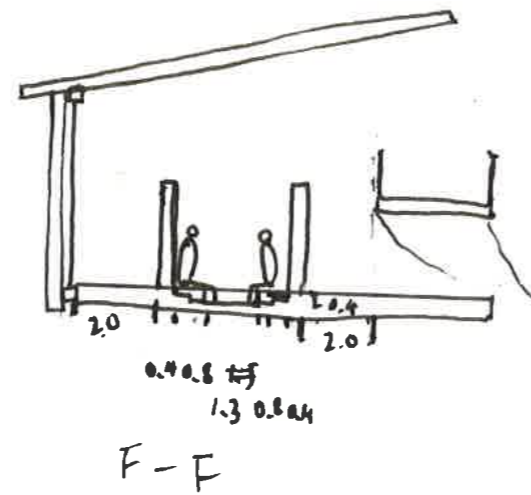
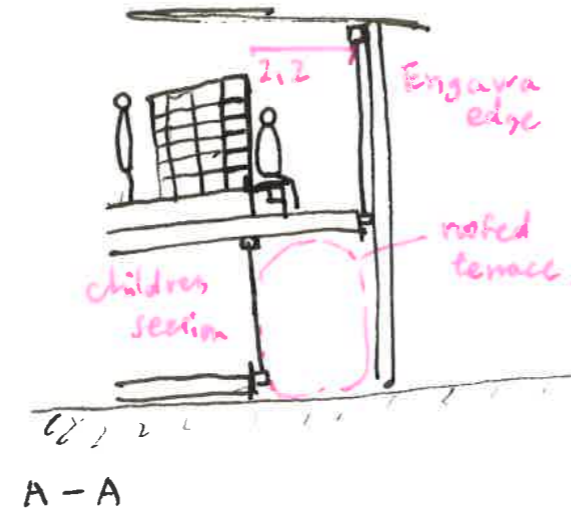
The example space consists of a corridor, a slope for vertical connection, and specific rooms, such as maker space, from outside. The corridor space takes 2,700 mm, including seatable bookshelves. The slope width is 3,400 mm, with two lines of seatable bookshelves. The room width is 4,500 mm, but this is adjustable for the room size. And another side of the corridor is 2,700 mm.

Measurements of the final plan are adjusted to be broader or narrower, but they are come from based on these measurements,



## Confirming the interior

After deciding on the measurements, I drew confirming sketches once more to check and confirm if all functions are mutually working. At the beginning of the drawings, I thought the open space was the inner space, but I finally designed a courtyard because the site needs more greenery space. The courtyard provides void space, integrating whole floors. Considering vertical relationships with the open space made from interior gimmicks provides good spatial relationships in an entire building.



## 6-2 Architecture Development from urban contexts

In Chapter 5, I mentioned four urban contexts, which are possible decisions of the building shape. The surrounding buildings' size decides the size of the new city library and its setbacks. Public transportation and the fluidity of habitants determine rough building shapes to suit the fluidity of local people. Major road distribution becomes a design key for the site's and buildings' appearance. Because of the few surrounding greeneries, it suggests planting more greeneries on the site. In this section, I mention how the new city library building shape is developed by taking local context.

The common denominator of plans is the circulation and open space within the building. The circular building shape, which comes from the fluidity of local people, has a good affection inside because the new library allows patrons to walk everywhere without approaching an end by having circulation. This circulation continues not only on the first floor. It enables making vertical circulation connecting with upper floors. Wide expanded circulation allows

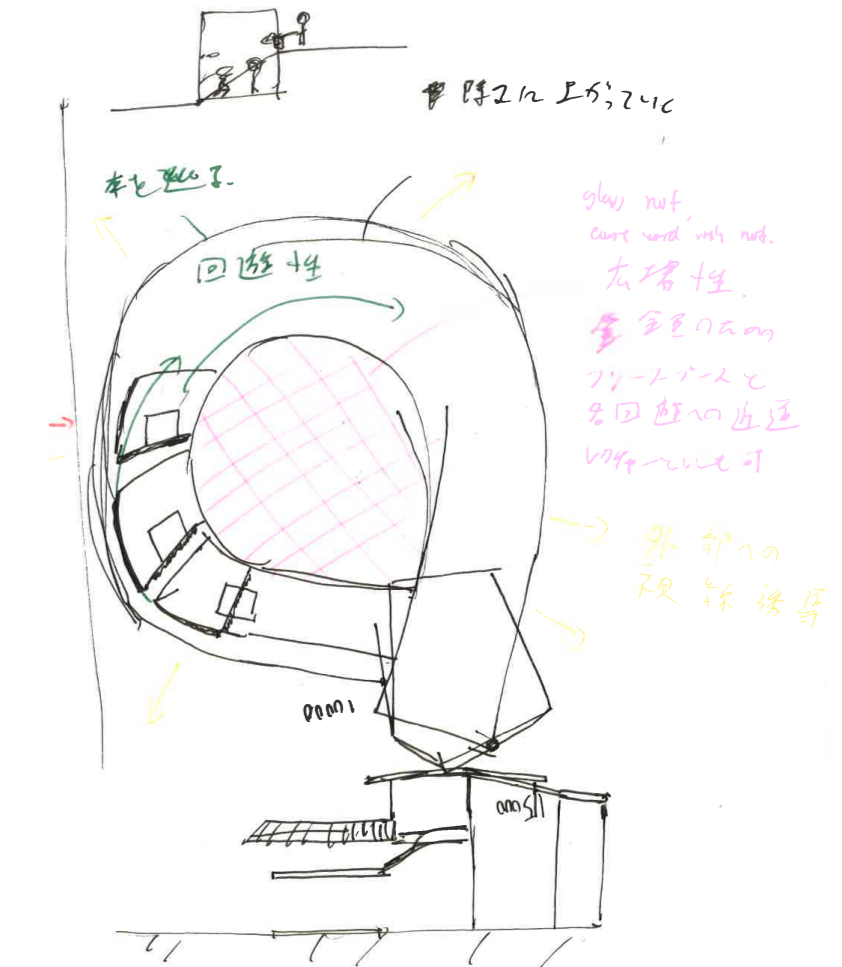
patrons to explore all way around.

The open space assists the hollow space caused by the circulation. If circulation is considered a space of movement, the open space can be regarded as a space of calm and tranquility. Patrons explore the circulation, whereas other patrons can be in an open space calmly. This open space can be considered an inner yard as well as a courtyard.

## Concept development

The "Circulation" leads patrons to the literature journey. Patrons can meet new books by walking around in the library. Interior gimmick help to promote circulation with bookshelves arrangement, unique bookshelves, seating area arrangement, etc. Circulation defines the edge part of the building inside.

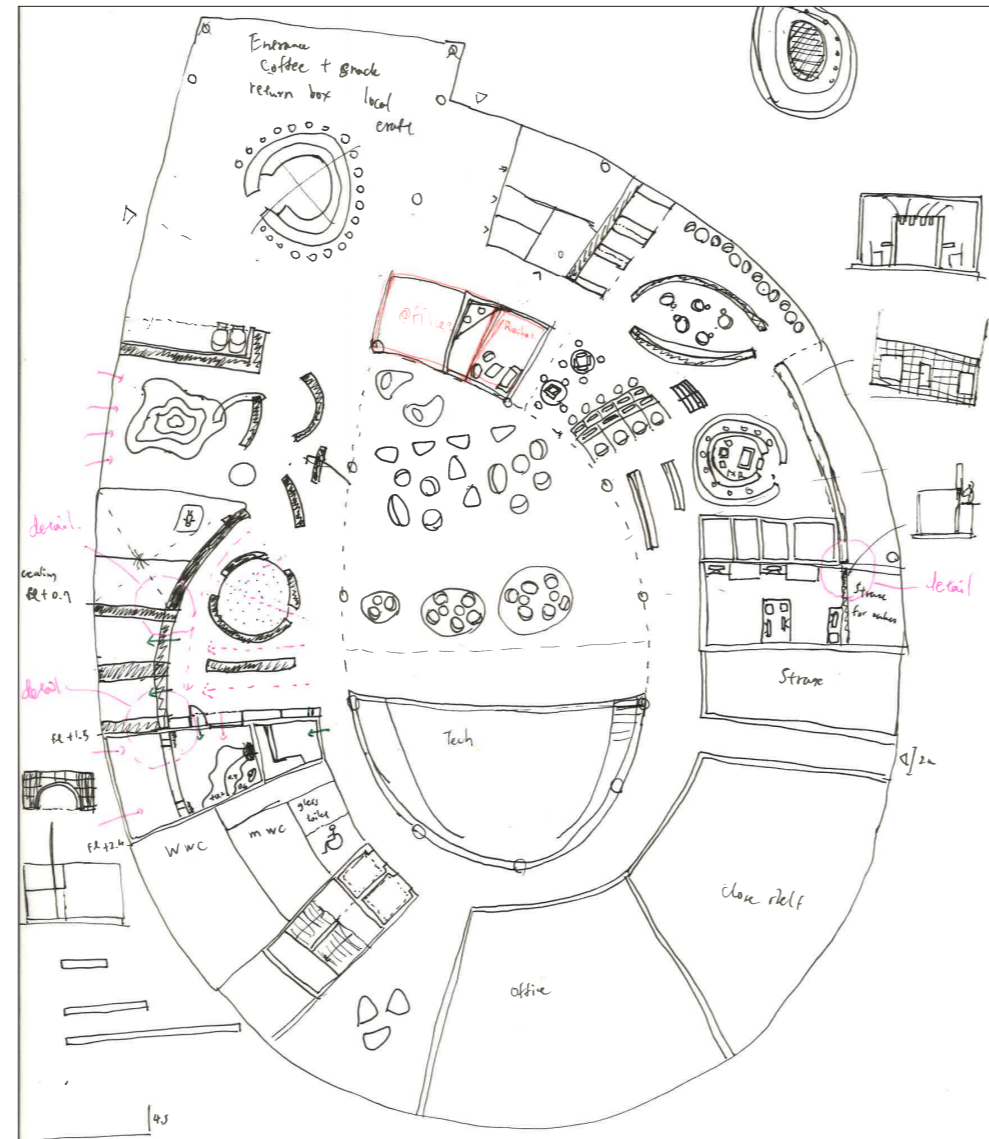
The "Open space" defines the core part of the building inside. The open space can be seen everywhere, and its space integrates all floors in one building. Patrons can use it there with a calmer atmosphere. The open space can be available if holding some event or open lecture.



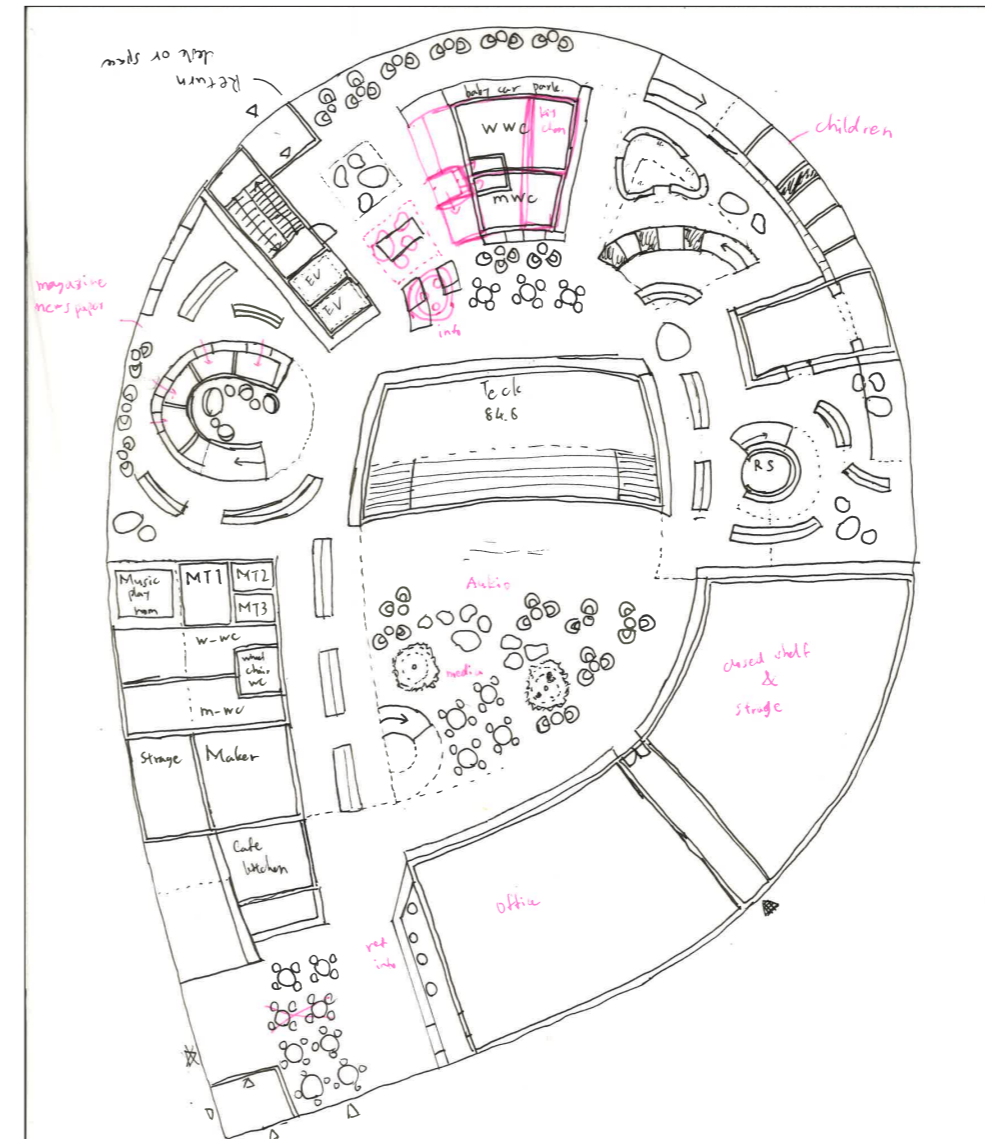
## Idea development process

Sketches show how the circulation works in the plan and how it has been developed. In the first plan, the circulation exists only one way from the 1st floor to the 2nd floor, connected by slopes and a staircase, and it seemed too short circulation. The second plan had many vertical connections, like staircases and slopes between floor slabs. It could say more circulation there, but they were just connections between floors. They had to reconsider more fun walking. The open space in the middle of the plan was useless because of the overscaled space. I could not guess what happened in the open space.

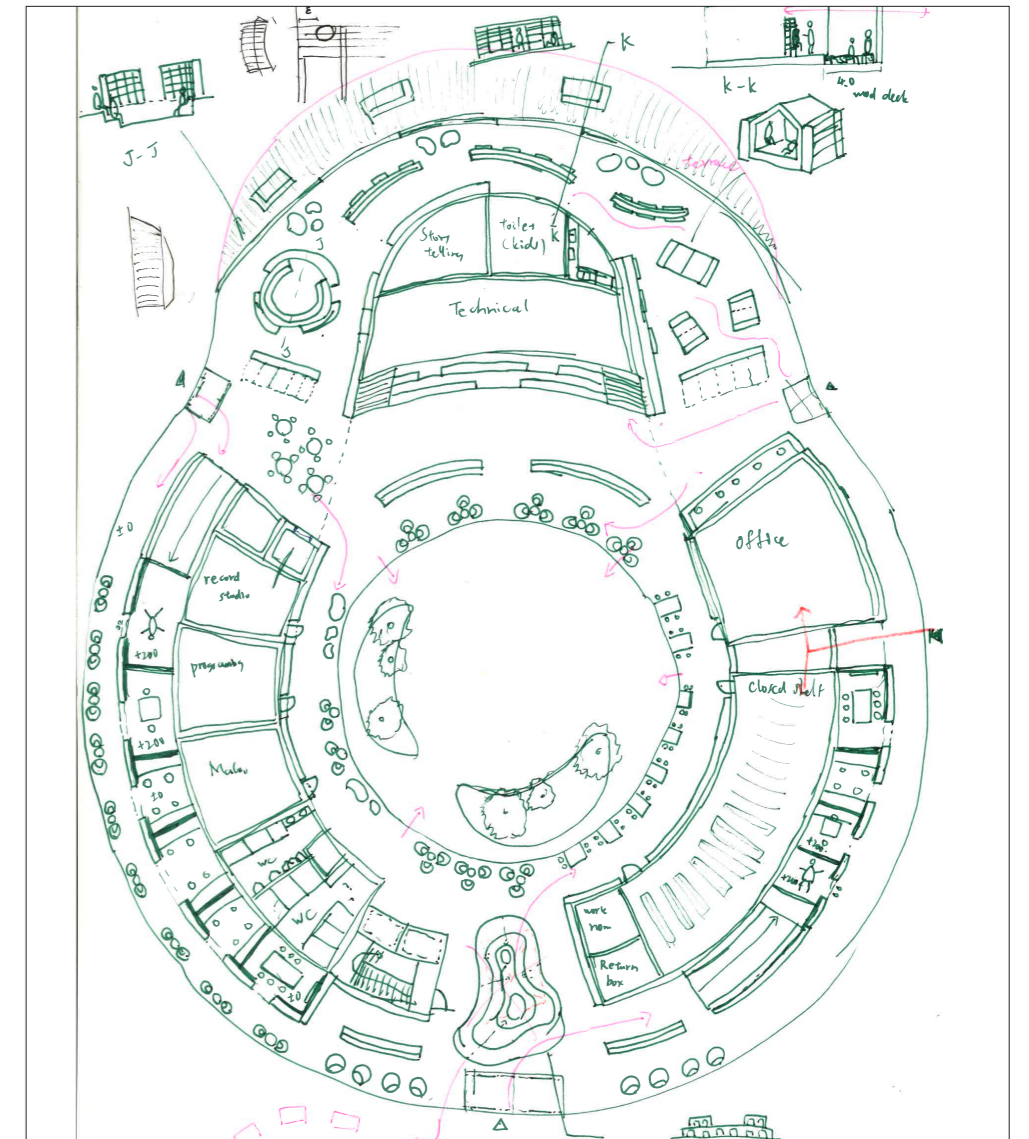
Finally, "Circulation" and "Open space" become well-connected. The circulation became continuous from the 1st floor to the 3rd floor. The vertical connections connect all floors with the seatable staircase or slopes. The half area of the open space from the second plan became the courtyard. There are additional greeneries, and patrons can read books outside.



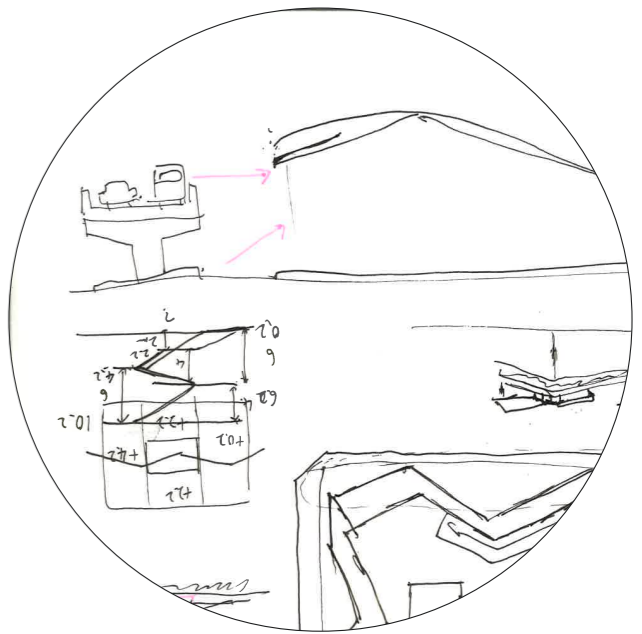
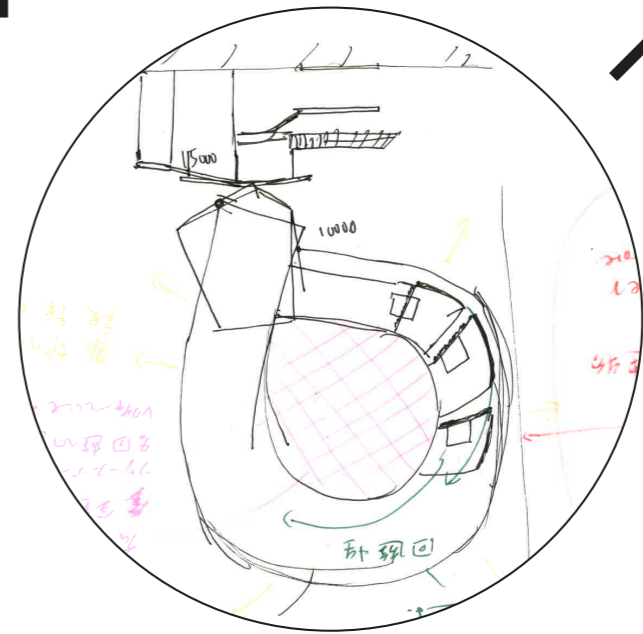
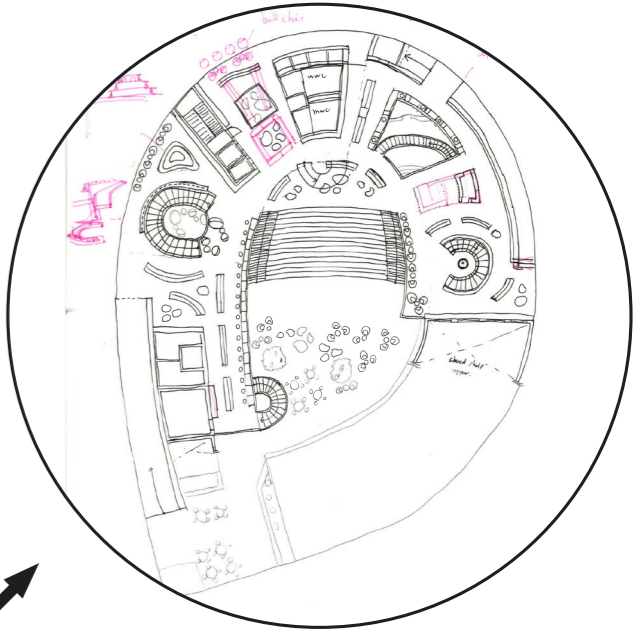
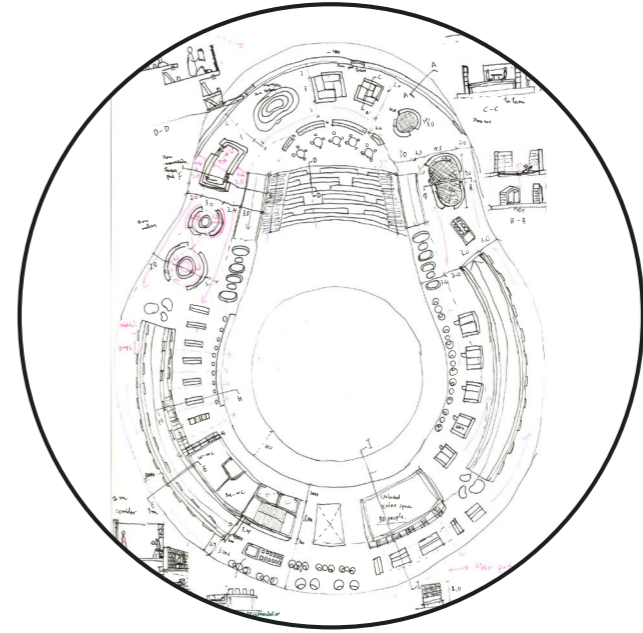
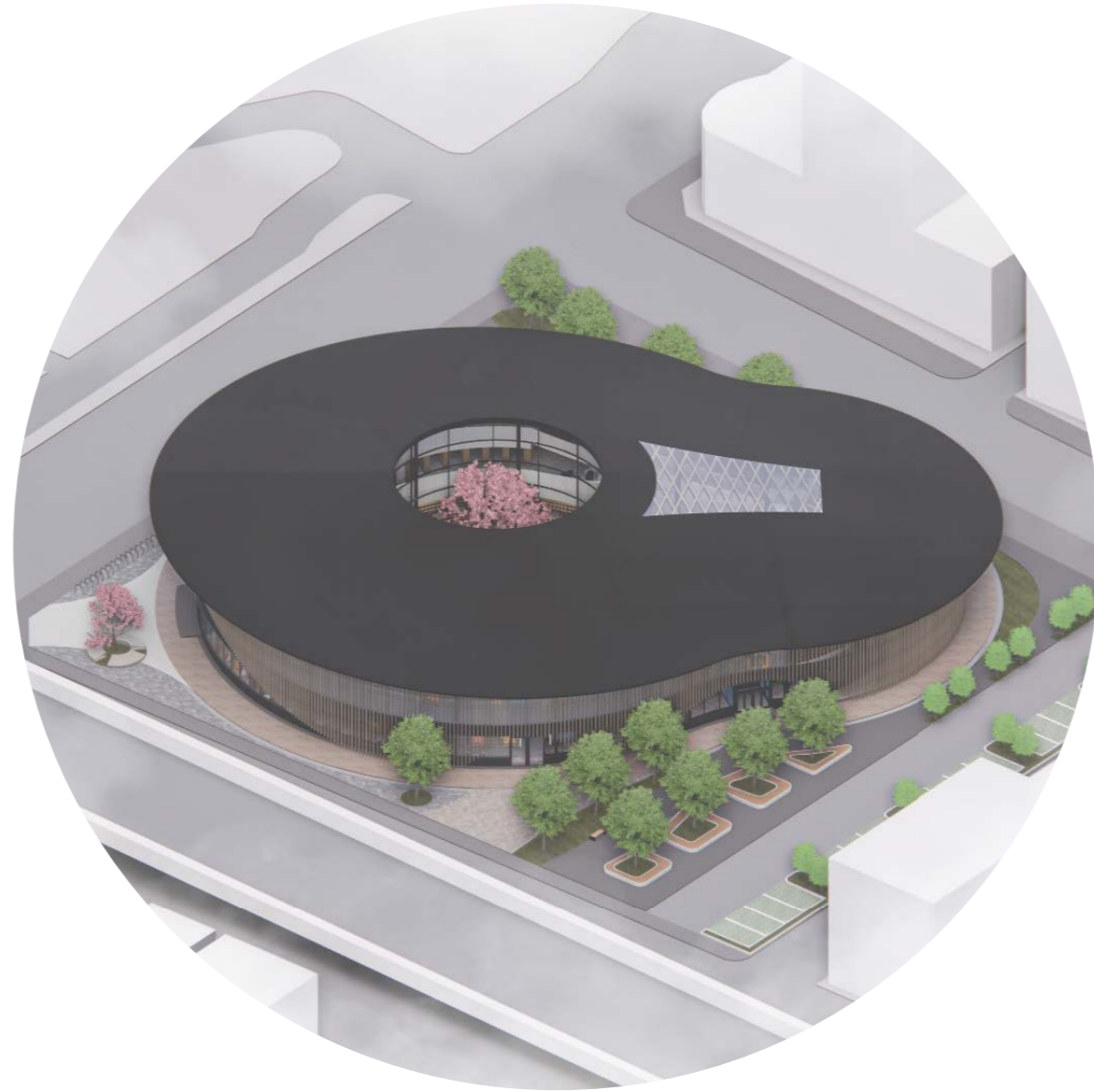
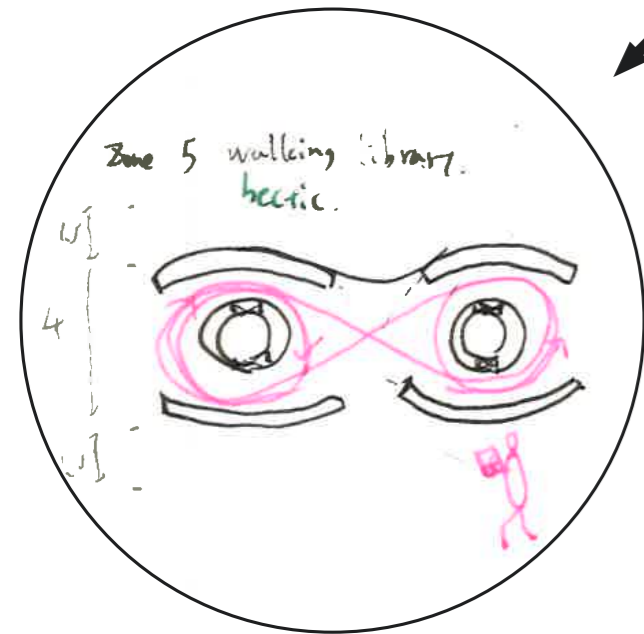
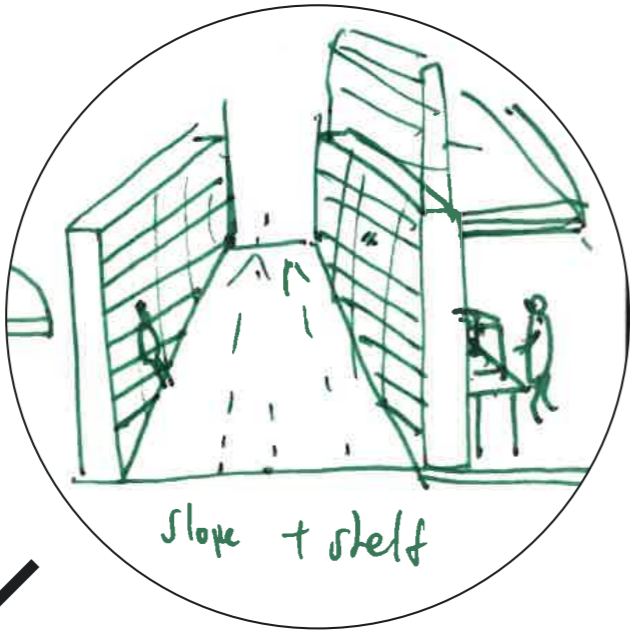
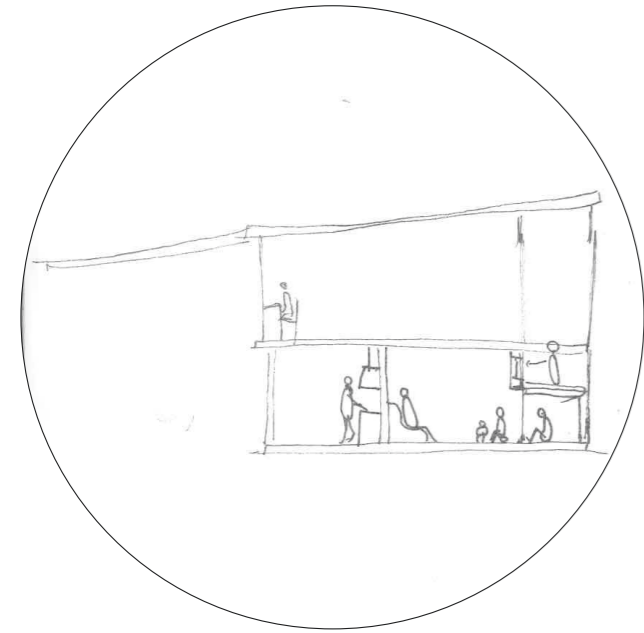
First version



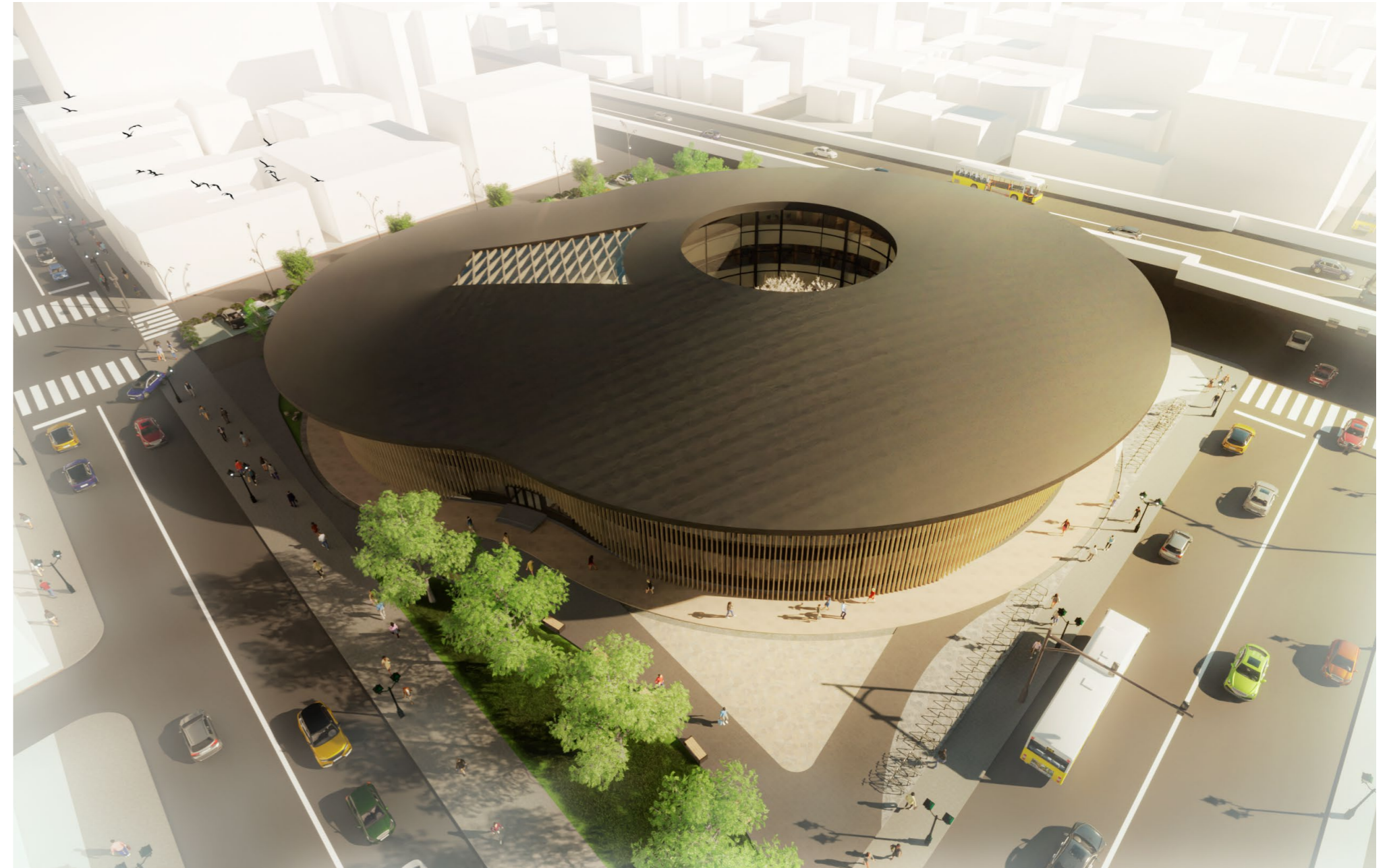
Second version



Third version



## 7. New Fukushima City Library



Birds eye view of the whole building



## Area Planning 1:1500

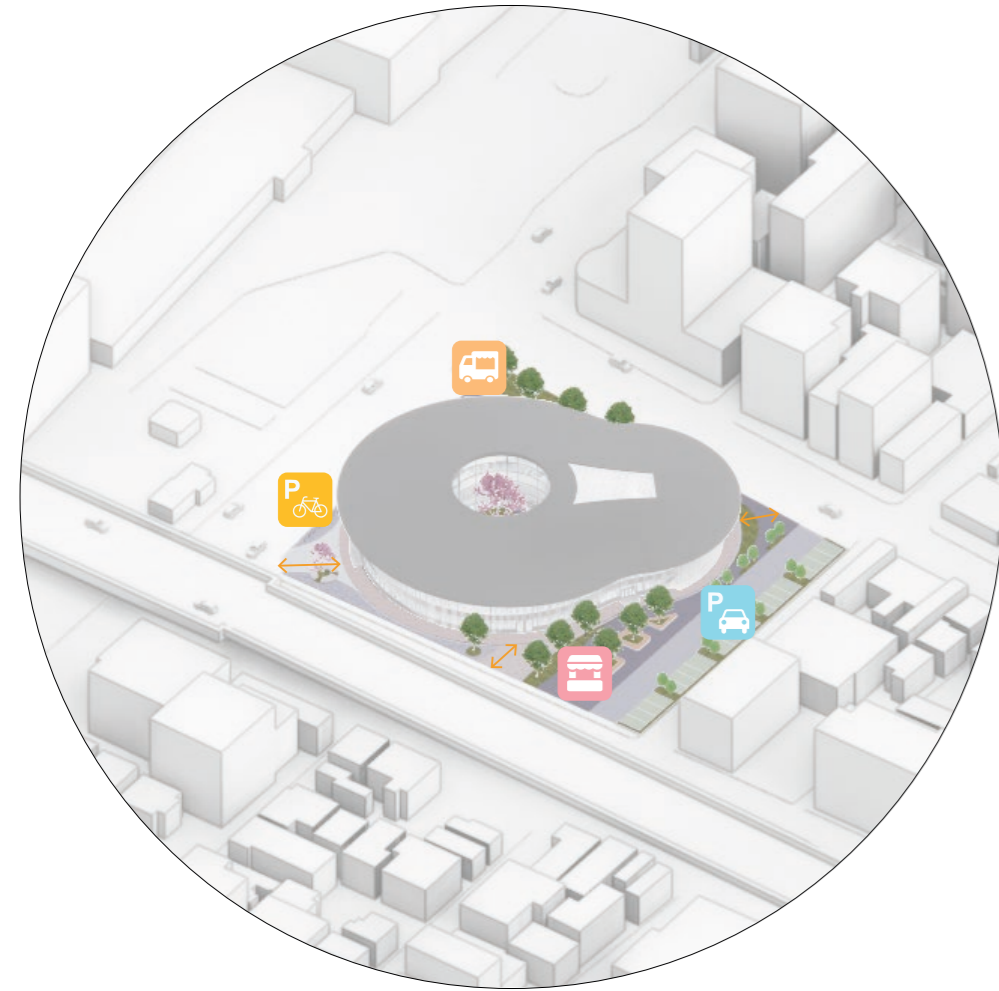
The site and the library building integrate the surrounding atmosphere as an urban buffer zone. Since the site is in front of a train station and in the middle of the city center, there is a pretty hectic atmosphere around the site. There are business buildings, shopping mole, and some other communal buildings. On the opposite, the south side across the bypass is peaceful and calm, with apartments, houses, and small stores. The site becomes a sector that connects these atmosphere gaps and acts like an oasis in the city.

The library building is angled at about 45 degrees from the north to make open green areas like a park atmosphere with plants. There is a promenade from the train station at the northwest corner with continuous greeneries from the station. On the southeast corner is a peaceful park to buffer between the site and the hectic road. The northeast corner and the southwest corner have narrower space than other corners so that pedestrians can see an inside atmosphere, and if they feel like going into the library,

they can access it quickly.

Car parking is on the site's east side because people in the Fukushima city area often use cars. There are trees between the car park and the library building to keep pedestrians safe. People can easily access the new library by using public transportation like bus or train. Cars are also acceptable from rural areas, and bikes are for neighboring users.

## Setback



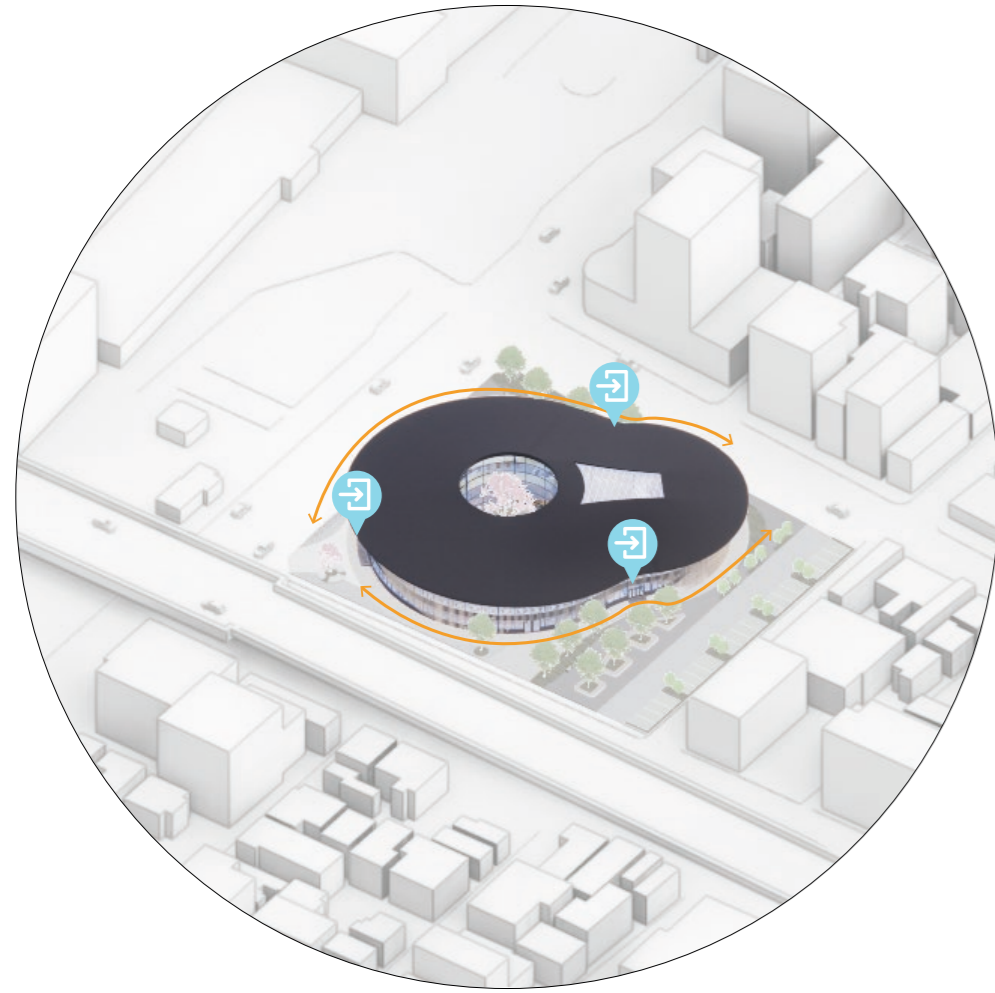
Angling at 45 degrees and shaping to a circular form allowed the site to obtain setbacks for four directions. There are generally calm and peaceful atmospheres on the northwest and southeast corner with rich greeneries. There are also many attached benches on the pavement, so people can use them whether or not they are library patrons. Additionally, there are some open spaces for event use; for example, mobile kitchen cars can stay selling food, and organizers can assemble temporary booths for organizing events. Patrons can park their bikes on the west side, where setbacks along the road are bicycle stands for bike users. The site allows having rich or functional spaces by taking setbacks.



Entrance from the car parking



## Fuluidity

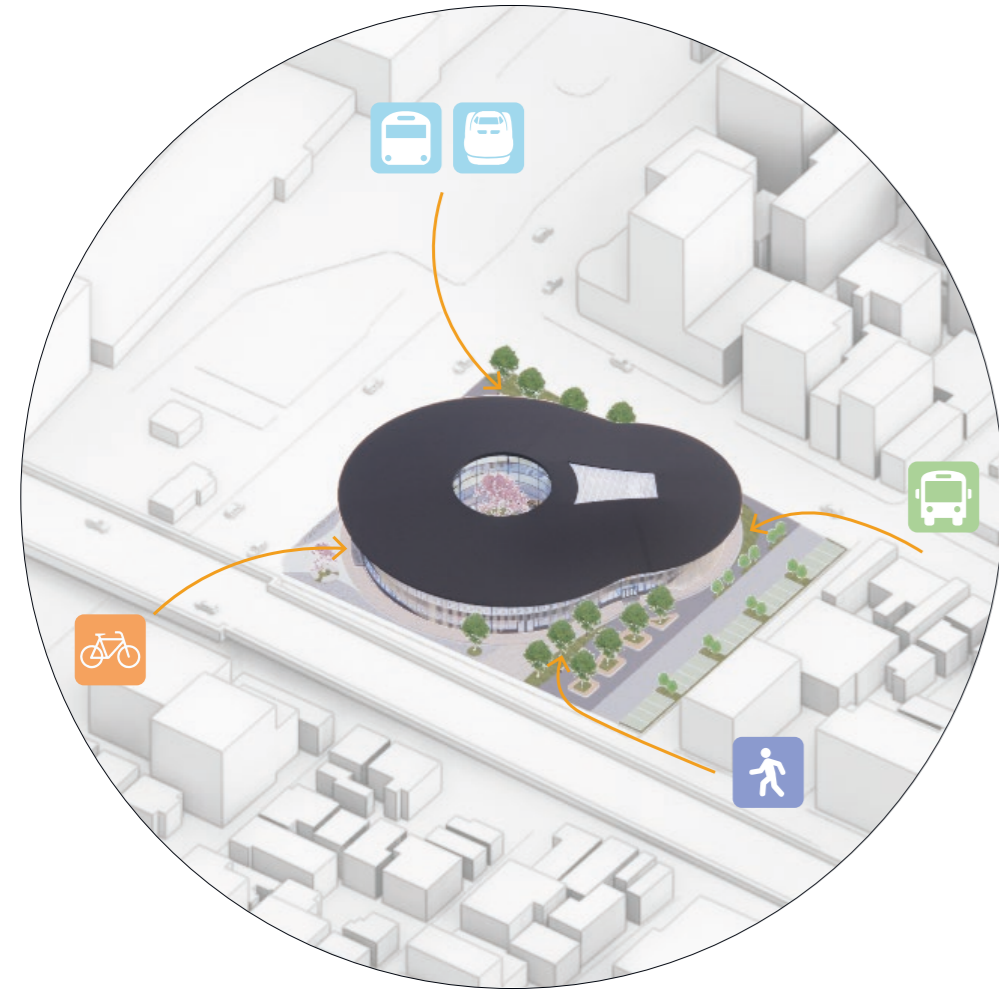


Considering the fluidity of people, the building shape becomes circular to promote more active fluidity within site. How to invite people into the library on fluent fluidity is a crucial thing. So this new library has one main entrance facing one of the major roads and two sub entrances on the neckline. The main entrance is the face of the building and creates a welcoming atmosphere with a glass façade, wooden louvers, and a symbolic tree. Sub entrances are located on necklines along the building edge, which allows inviting people smoothly from the fluidity.



Main Entrance in spring

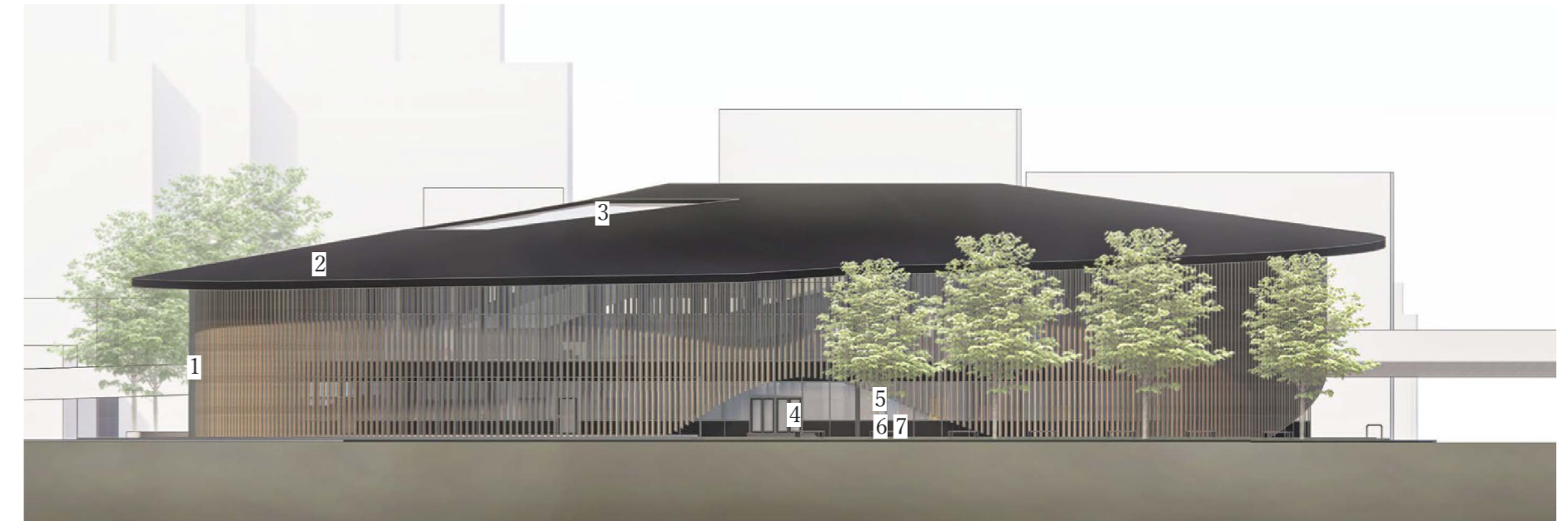
## Approach



The site accessibility is well-connected for any transportation. From the train station, the promenade with rich greens approaches people at the sub entrance or, going along the street, approaches the main entrance. Convenient access from the train station lets people stop in briefly before or after work or school. The new library can be seen from any line of bus stops, and its approaches from any direction lead patrons to entrances.

In other words, the library building opens in all directions with a pavement with planted greeneries. So, the new library building invites people in any way, like bicycles, pedestrians, and private cars.

## North Elevation: Facade material 1:400



1. Wood preserve painted pine wood louver, natural color
2. Slate cladding roof, light black color
3. UV-cut filmed clear roof glass
4. Aluminum door frame, light black color
5. UV-cut filmed safety glass, clear
6. Stainless steel panel, light black color
7. Steel curtain wall frame, black color



## East Elevation 1:800

The façade is composed of glass curtain walls and triangle-shaped wooden louvers. The curtain walls are organized into two panels: UV-cut clear glass panels and stainless steel black panels. UV-cut clear glass panels ensure the views of both sides. UV-cut clear glass, which protects library materials from sunlight, allows people to see the inside atmosphere from the outside and patrons to see the sceneries of Fukuoka City from the inside. Stainless steel black panels are used for covering floor slab units, like floor slabs, ceilings, and pipes. Triangle-shaped wooden louvers work as the sight exchanges buffer material. Woods are shaped sharper to the outside and broader to the inside. While the inside of the building is smoothly visible from the outside, the triangle shape allows patrons to see the view from the inside by consciously directing their gaze to the outside. In addition, wooden materials can create a friendly atmosphere for the Japanese because we used many wooden materials from old age.



## Floor Plans 1:500

When patrons come inside, as soon they can see the courtyard and void space from the 1st to 3rd floor, which integrates the whole library space from any entrance. The central void area creates a bright seasonal atmosphere with its landscape, such as blooming cherry blossoms, light green new leaves, color changes of leaves, and snowfalls. Wherever on a circulation, patrons can see sceneries to the outside.

The 1st floor consists of multi-functions. There is a maker space, programming lab, record studio, meeting studio, cafe, etc., which patrons can use freely. On the way to access these functions, there are bookshelves and seats that allow patrons who are just interested in using these spaces to encourage reading books for their interest to expand ideas. Because these spaces can be seen from the circulation and slopes, patrons who are just interested in books would be stimulated to use them next time. These functions, reading encourage environment and circulations are interrelated each other on the 1st floor. The under space of slopes on the 1st floor also consists of several

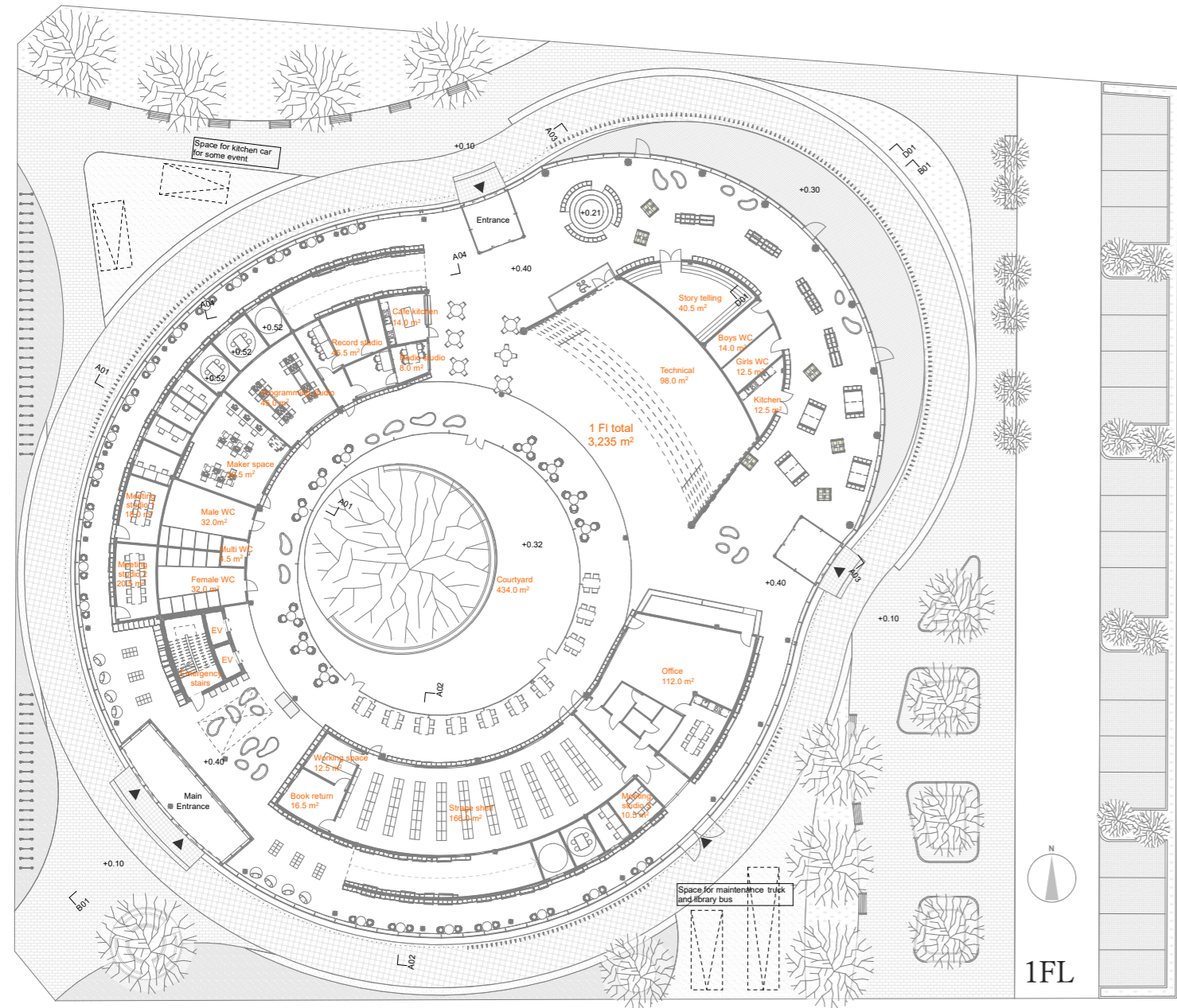
semi-closed spaces which can be used to concentrate on reading books, studying, and having a meeting.

The 2nd floor consists mainly of reading encouragement environments. This floor reflects interior gimmicks accurately, and you can see some gimmicks, such as a “Walkable reading area,” “Small hill for reading,” and “Ergonomic colonized space.” The 2nd floor’s atmosphere encourages patrons to read books with many interior gimmicks and stimulates them to want to read books. Patrons can access books with their favorite place, environment, and style.

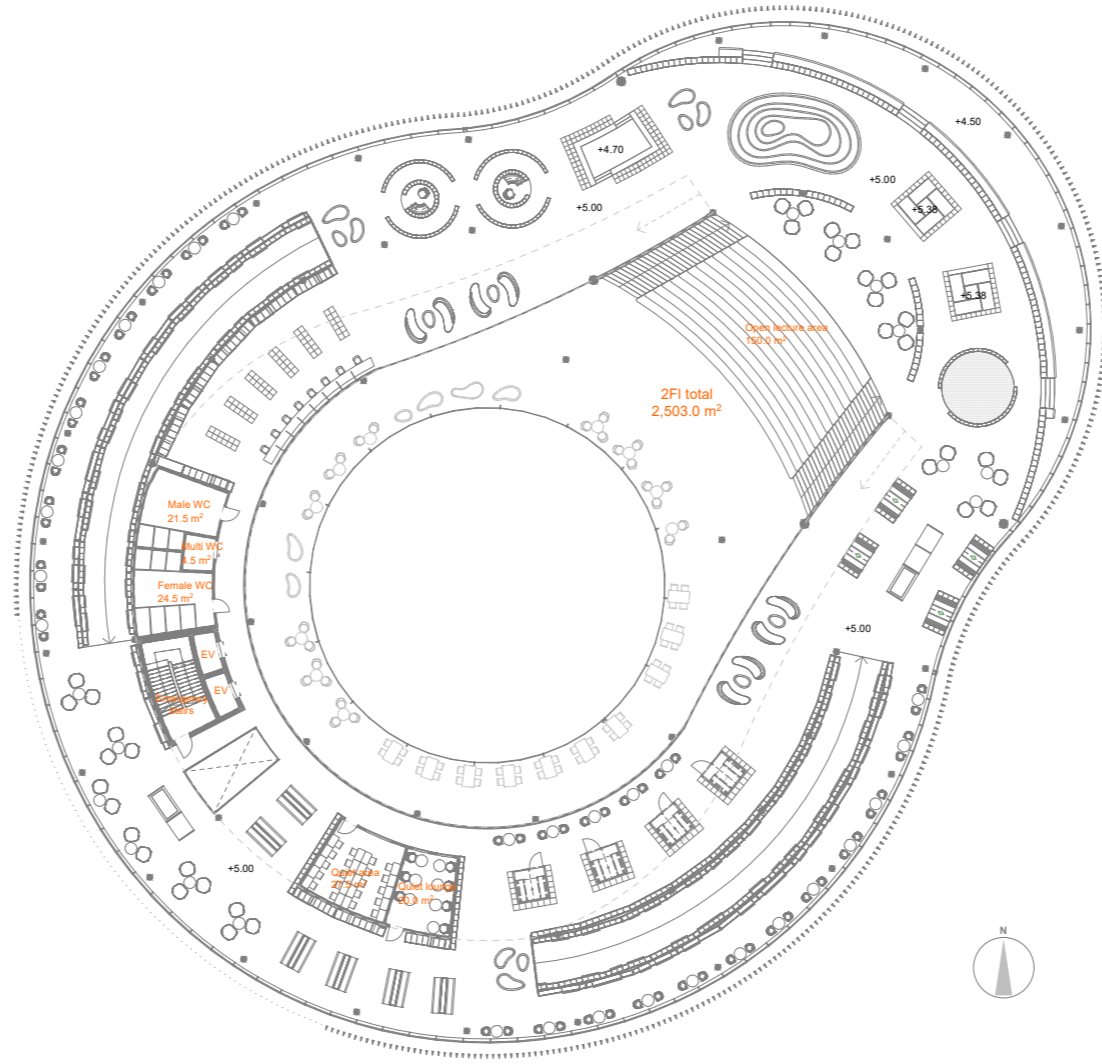
The 3rd floor is quieter and more traditional atmosphere with aligned bookshelves. Patrons can still read books in a traditional atmosphere with calm if they want. The scenery from the 3rd floor is the best because patrons can see the whole library atmosphere, beautiful courtyard, and city.

## Areas

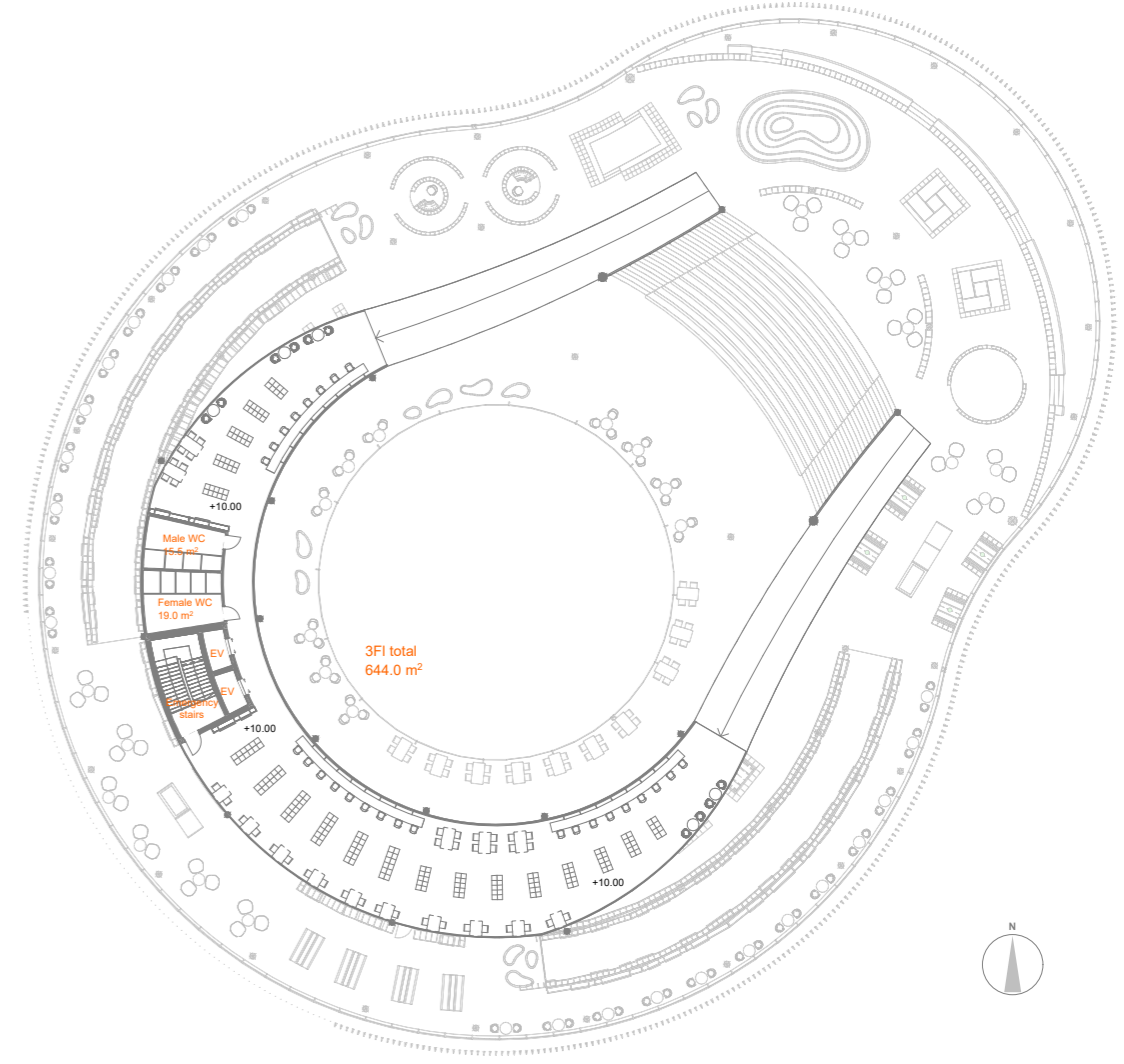
<b>1st Floor</b>	<b>3,235 m<sup>2</sup></b>	<b>2nd Floor</b>	<b>2,503 m<sup>2</sup></b>
User accessible areas	2,239 m <sup>2</sup>	User accessible areas	2,426 m <sup>2</sup>
Open shelf area	2,009 m <sup>2</sup>	Open shelf area	2,228 m <sup>2</sup>
Programming room	45 m <sup>2</sup>	Open lecture area	150 m <sup>2</sup>
Maker space	50 m <sup>2</sup>	Quiet room	28 m <sup>2</sup>
Record studio	46 m <sup>2</sup>	Quiet lounge room	20 m <sup>2</sup>
Storytelling room	40 m <sup>2</sup>		
Meeting studio (3 rooms)	49 m <sup>2</sup>	Other areas	77 m <sup>2</sup>
		WC	50 m <sup>2</sup>
Librarian areas	315 m <sup>2</sup>	EV	7 m <sup>2</sup>
Office	112 m <sup>2</sup>	Emergency stairs	20 m <sup>2</sup>
Strage shelf area	166 m <sup>2</sup>		
Book return room	17 m <sup>2</sup>	<b>3rd Floor</b>	<b>644 m<sup>2</sup></b>
Workspace	12 m <sup>2</sup>	User accessible areas	582 m <sup>2</sup>
Radio studio	8 m <sup>2</sup>	Open shelf area	582 m <sup>2</sup>
Other areas	247 m <sup>2</sup>	Other areas	62 m <sup>2</sup>
WC	95 m <sup>2</sup>	WC	35 m <sup>2</sup>
Kitchen space	13 m <sup>2</sup>	EV	7 m <sup>2</sup>
Cafe kitchen	14 m <sup>2</sup>	Emergency stairs	20 m <sup>2</sup>
Technical space	98 m <sup>2</sup>		
EV	7 m <sup>2</sup>	<b>Car and bicycle lots</b>	
Emergency stairs	20m <sup>2</sup>	Car lots	20
		Bicycle lots	47
Courtyard	434 m <sup>2</sup>		
		<b>Total</b>	<b>6,382 m<sup>2</sup></b>



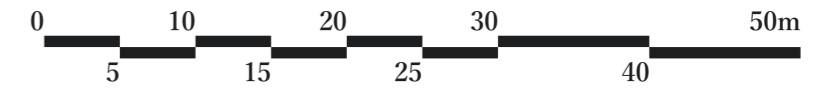
1FL



2FL



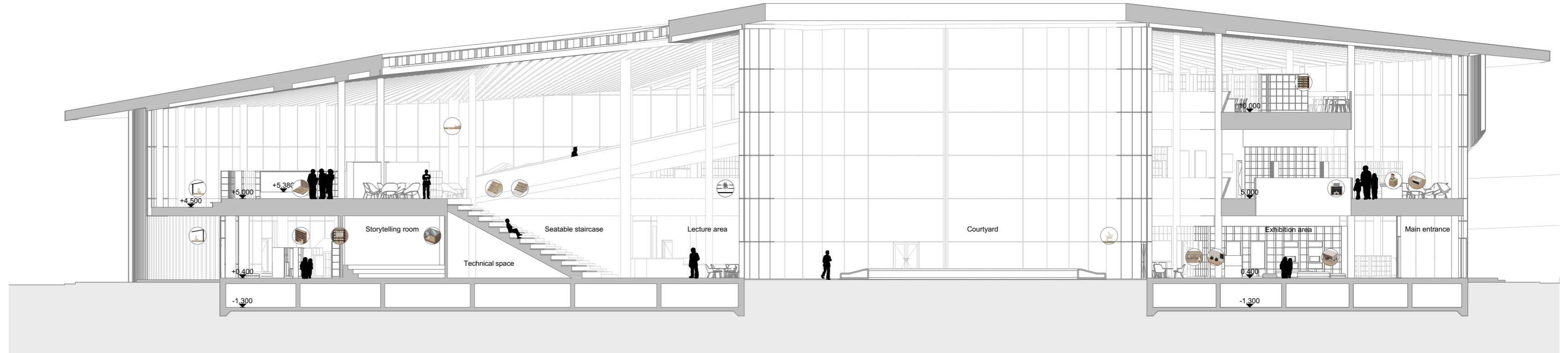
3FL



# B01 Whole Building Section 1:200

From the 1st to the 3rd floor, slopes and a staircase smoothly connect each floor as circulation surrounds the courtyard. The courtyard and hall space work as an open space and integrate the whole building's interior. The roof slope rises toward the courtyard, indicating the importance of the courtyard and making it a symbolic space. In addition, lowering the roof slope toward the city directs the patrons' sight toward the city.

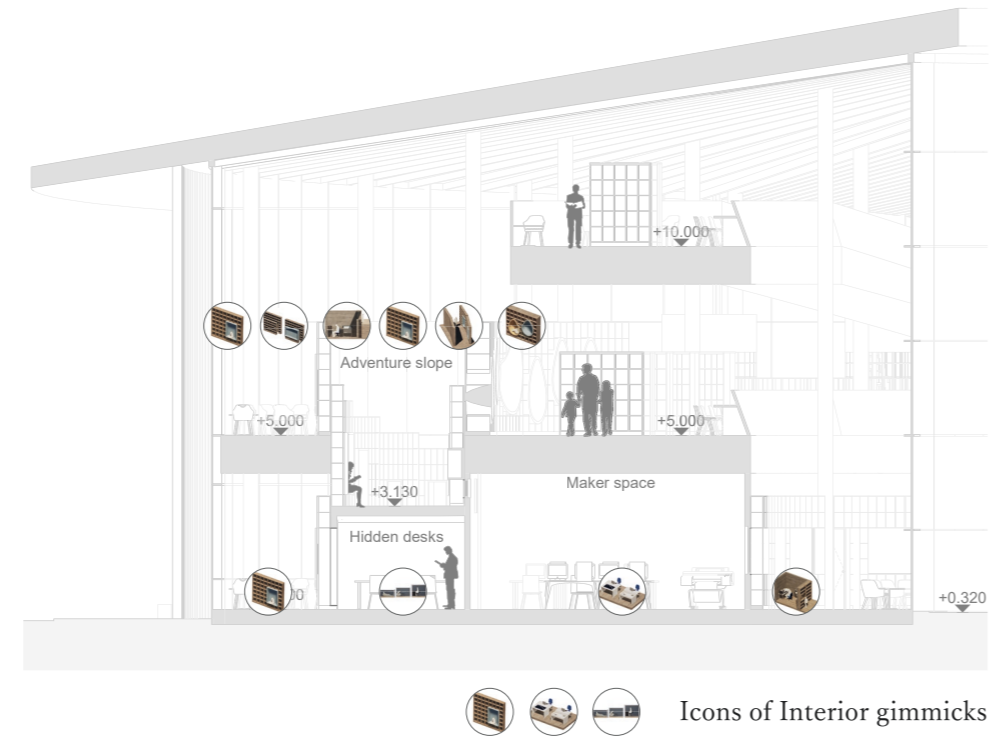
The section plans also show the reflection of interior gimmicks and where the gimmicks are located in the planning.



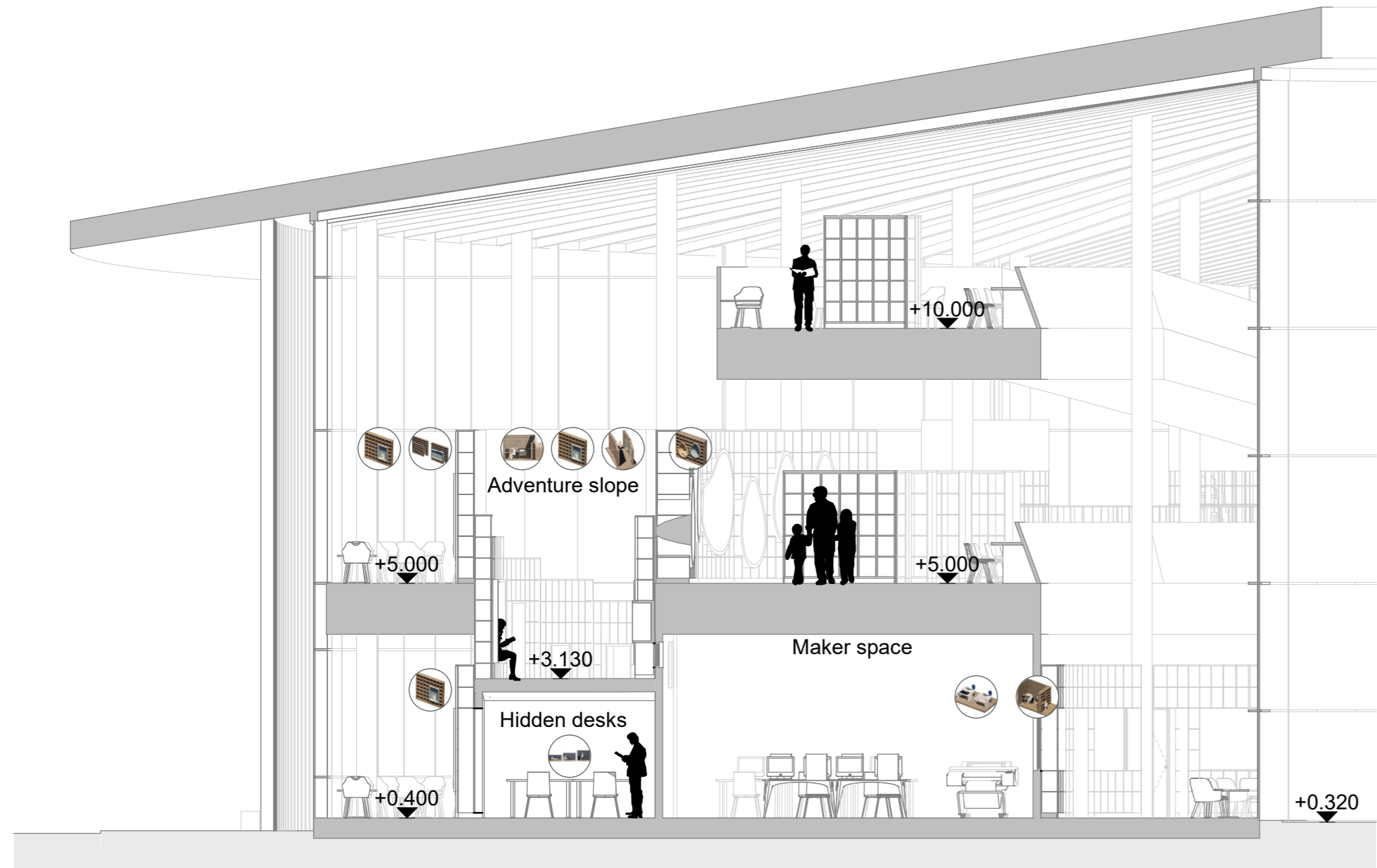
## Local Sections 1:100

Local sections show the spatial relationships between diverse functions and the reading encouragement environment. They tell how patrons are moving around the library spaces and how they find or access the new experience by exploring the library spaces. The library space can provide new opportunities for patrons while keeping their essential roles by supporting each other through reading environments and diverse functions.

There are interior gimmicks icons on local sections. They show what interior gimmick ideas are used in the library.



Courtyard with a symbolic cherry blossom tree



A01 Local section 1:100



Interior view from the 2nd floor

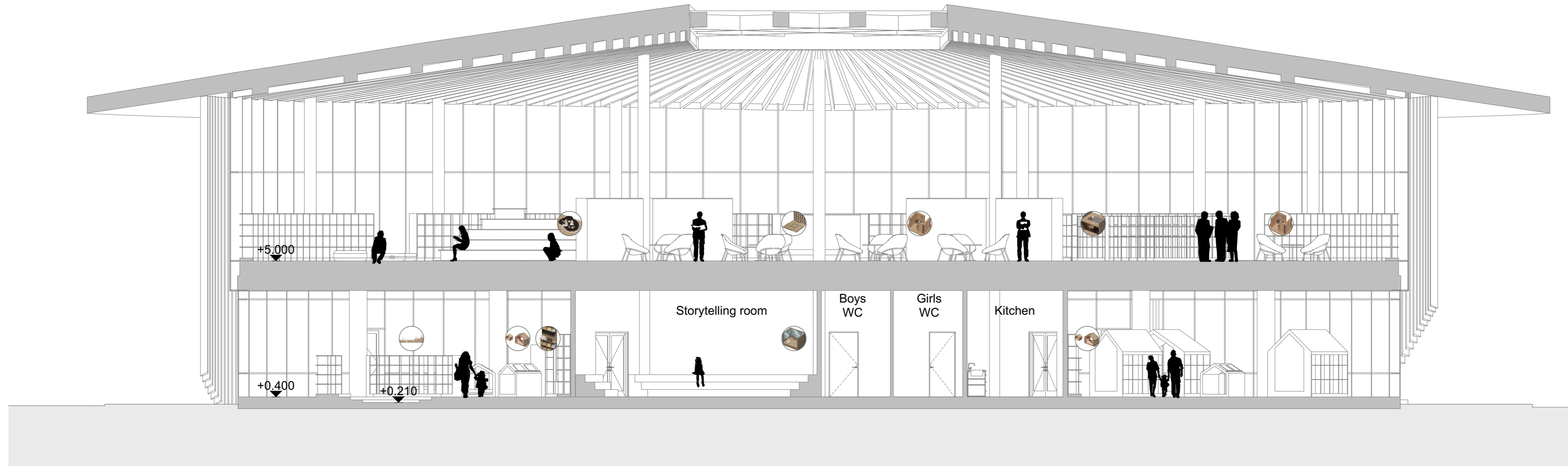




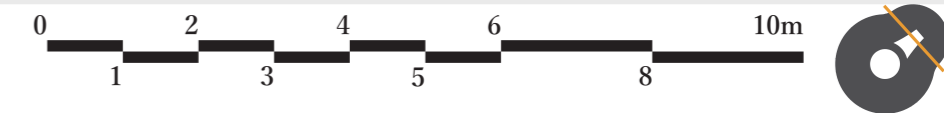
A02 Local section 1:100

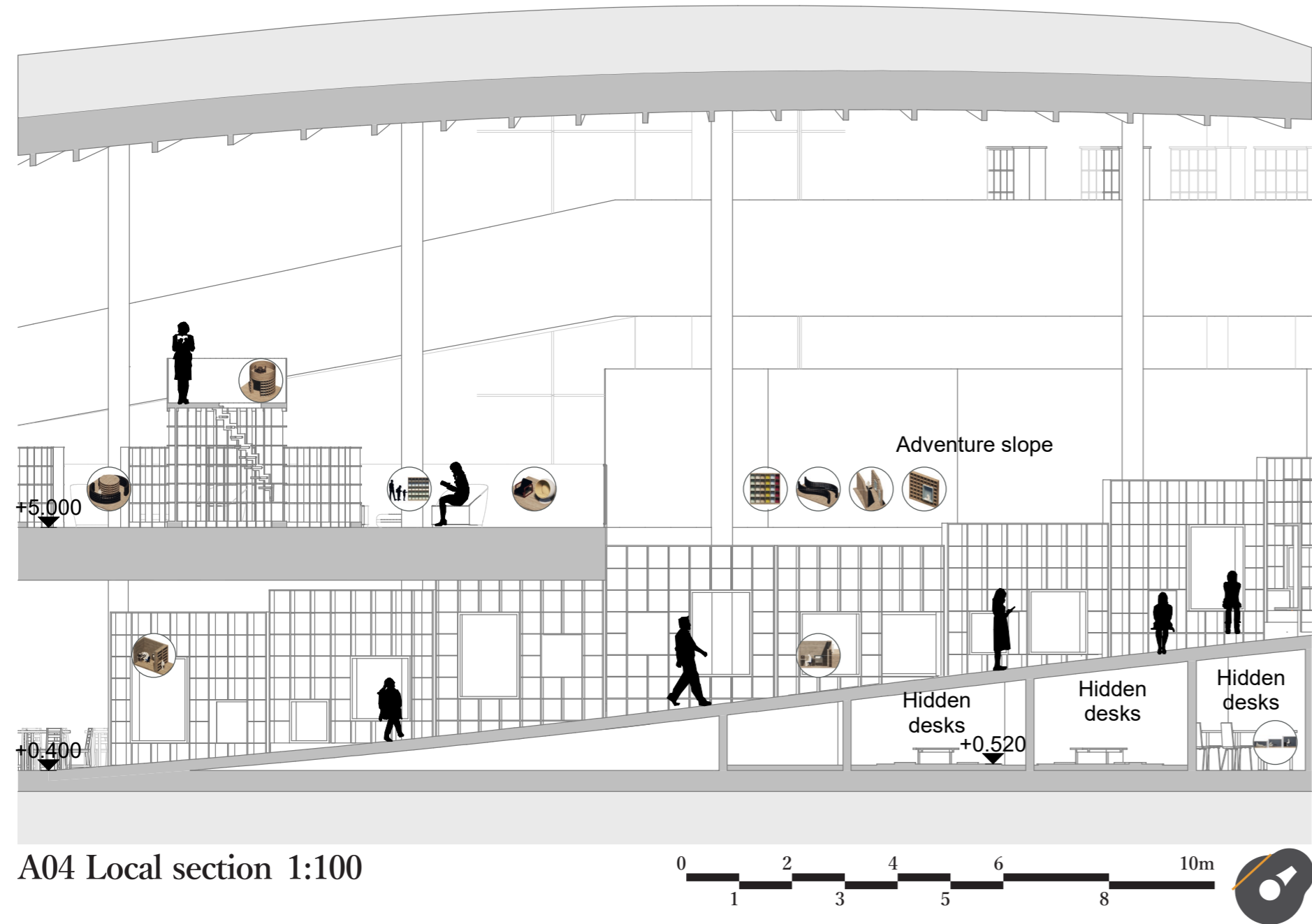


Interior view with vertical slope connections between the 1st to 3rd floor

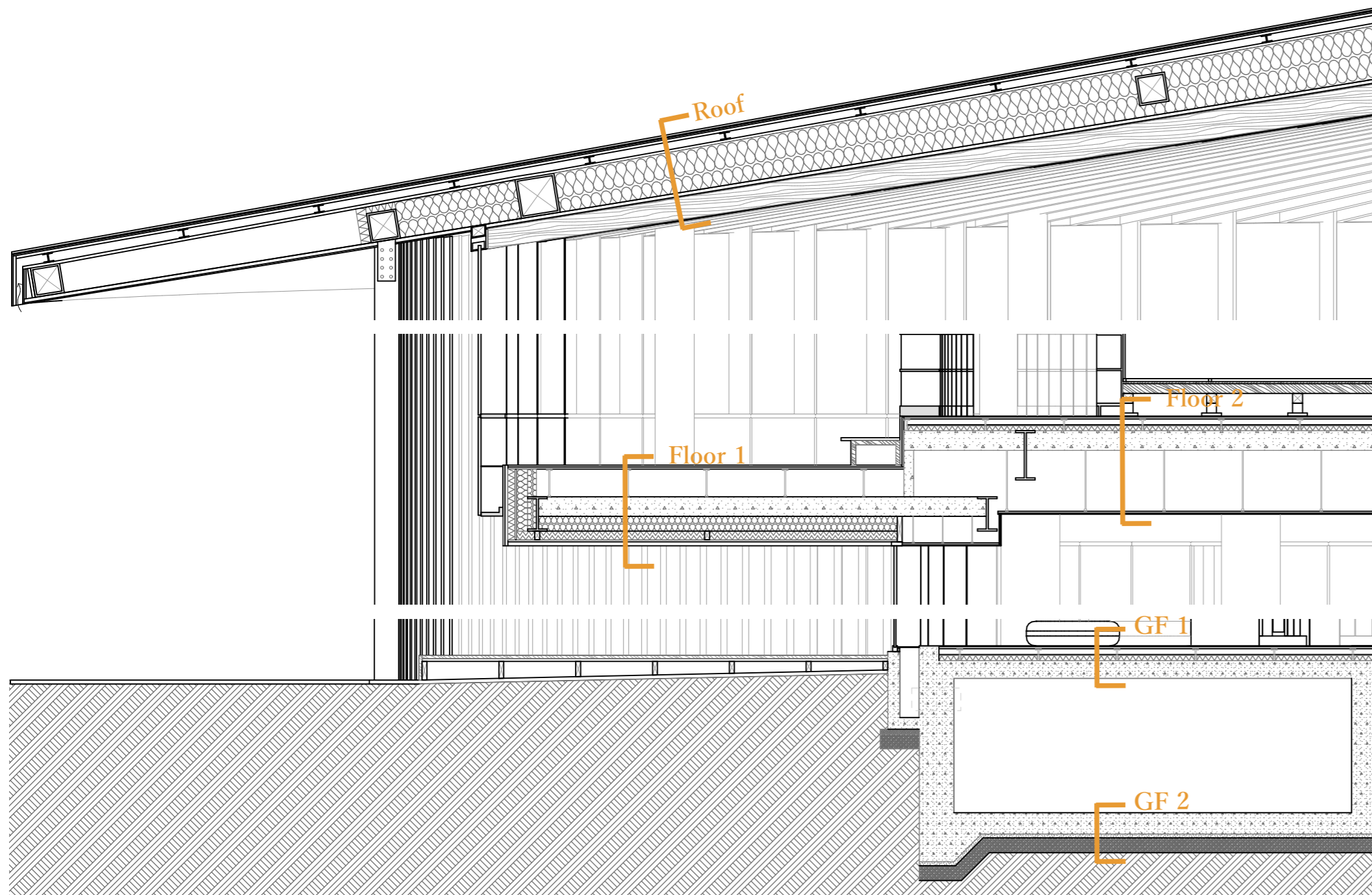


A03 Local section 1:100





Interior view from the 3rd floor with variety of reading environments



D01 Detail section 1:50



Roof		
Cladding metal roof panel	20 mm	
Water-proof sheet	3 mm	
Lathing	7 mm	
Wooden roof panel	15 mm	
Plaster panel	30 mm	
Air gap & panel supporter	75 mm	
Plaster panel	30 mm	
Glass wool insulation	400 mm	
Ceiling plaster	20 mm	
Wood finishing panel	12 mm	
Wooden decoration rafter	200 mm	

Floor 1		
Finishing tile & carpet	12 mm	
Wooden floor panel	20 mm	
Floor panel supporter & Electrical cable space	280 mm	
Concrete structure slab	200 mm	
Glass wool insulation	150 mm	
Acoustic hard glass wool	80 mm	
Wood panel	20 mm	
Wood plank	40 mm	

Floor 2		
Finishing tile	12 mm	
Wooden floor panel	20 mm	
Electrical cable space	60 mm	
Plaster panel	10 mm	
Acoustic hard glass wool	50 mm	
Concrete structure slab	200 mm	
Ceiling hanger & Pipe space	620 mm	
Plaster panel	20 mm	
Finishing panel	5 mm	

GF 1		
Finishing tile	12 mm	
Wooden floor panel	20 mm	
Electrical cable space	60 mm	
Plaster panel	10 mm	
Acoustic hard glass wool	50 mm	
Concrete floor slab	20 mm	

Pipe space 1,370 mm

GF 2		
Foundation concrete	180 mm	
Concrete sub-slab	40 mm	
Moisture-proof sheet	2 mm	
Crushed rock	150 mm	

## Discussion

Through this diploma thesis, I aimed to understand how public library spaces ensure their essential role in connecting patrons to literature in today's diverse library. Becoming a public library with more diverse spaces and functions is good for patrons because public libraries are vibrant and accessible to many patrons, and they are like living rooms in a city more than ever. However, it seemed that library materials such as books, audio, video, and newspapers had become mere appendages in an overly function-filled library. In my opinion, even considering that libraries' functions are changing with the development of the Internet, we must always consider the essence of libraries: access to literature. Therefore I have tried to design library spaces to encourage patrons to read books actively.

Through this diploma thesis, I was able to show the methodology of the design process approaching simultaneously from both interior design and urban contexts as a way to think of library spaces. Thinking about interior gimmicks allows all people involved in

planning, such as architects, stakeholders, librarians, and users, to imagine small scenes happening in the library. Since interior gimmicks are suggested from user experience and scenes in the library, it would be possible to propose ideas reflecting both the users' and the designers' opinions. Combining with several interior gimmicks allows us to think about the balance between the diverse functions and the essential role of public libraries. Considering the urban contexts is also important in deciding the shape of buildings. Interior gimmicks allow making areas and zonings to connect with each other, but it wasn't simple to design the whole building approaching it from the inside. So, considering the shape from the point of view of the urban context is needed to develop the design efficiently. In addition, approaching the design from the point of view of the urban context is also required for reflecting the locality. It allows using similar interior gimmicks in different cities, but the building shape should reflect their localities.

At the end of my diploma thesis, I hope the following things for the future extension.

- My diploma thesis would be treated as an initial inspiration for designing interior scenes and the possibilities of approaching from the interior.
- While I was thinking of interior gimmicks, I was doing it alone. Because of it, interior gimmicks would come up limitedly, and there could have been a bias. I hope that thinking in a group would boost discussion more profoundly, allowing us to develop more ideas of gimmicks from different sights.
- I could not suggest interior materials this time because of a lack of time. It would be better to consider finishing materials for developing ideas when approaching from the interior.
- When thinking about interior gimmicks as one of the ways of the design approach, I hope to keep updating the interior gimmicks and hope that one day

a catalog with a collection of interior scenes will be produced to help design in different urban contexts.

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## Photo Credits

Fig 1. Fukushima City in Spring by Masamu

Fig 2. Fukushima City in Summer by Erubons

Fig 3. Fukushima City in Autumn by Doridori

Fig 4. Fukushima City in Winter by Punchra

Fig 5. Fukushima City satelite image by Google Earth

Other photos, diagrams and images by author: Takashi Nomura

# Thanks

Firstly, I appreciate my supervisor, Anssi Lassila. While I was doing my diploma thesis, he always gave me opportunities to rethink the public libraries' attitude, future, and space matters. He fully supported my design work and provided opinions to lead me on the right way.

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# Presentation panels

**Background of Project**

Since the Internet has been developed, our life has more filled with information with smartphones, tablets, laptops, etc. We can access information anytime, anywhere. Various gadgets providing Internet access allow us to chat together, have a meeting, search for information as well as read books simply with just one device. People do not often go to the public library just to search for or obtain information. To attract customers, libraries started to equip their facilities with diverse functions, such as 3D printing machines, TV, games, and craft rooms, focusing more on experiences. As a result, public libraries today have diverse functions and are used as free spaces with flexibility.

However, at the same time, library materials, including any kind of books, audio materials, and video materials, are not the main focus anymore. The presence of materials in today's libraries seems like an additional thing. We must reconsider the library spaces within their essential role, which connects patrons and literature as part of the principal roles in a diversified library (Lahdenperä, 2013). In this context, literature broadly represents any kind of library materials, and library spaces should connect them to patrons somehow because library materials are not decoration.

The main aim of my diploma thesis is to reorganize public library spaces that have already become diverse in their functions, considering "with library's essential role. The public library can no longer be the place for stacking all the information with millions of books because Internet development replaces part of the library's roles. Still, library spaces can encourage patrons to read books and access literature. Public libraries should have spaces that inspire patrons to access literature with interest in a comfortable, unique, and calm atmosphere. These spaces should coexist with today's diverse functions of libraries because they have the potential that diverse functions can invite more people to the library as an entry point, and library spaces promote people to access literature.

**Site Information**

The design site is in Japan, Fukushima City in Fukushima Prefecture. Fukushima prefecture is located in northeast Japan (Tohoku region in Japanese), and Fukushima City is a middle-scale city in Japan with a population of 294,000. The geography of Fukushima City is the basin where mountains surround all directions. There is a significant difference in temperature between summer and winter, and the four seasons are clearly defined. There are a lot of sunny days in the spring. Hot and highly humid days continue in the summer after the rainy season. There are sunny and rainy days because of the typhoon seasons in the summer, and sunny days continue in the winter with little snow. You can feel clear seasons with beautiful plants and sceneries like cherry blossoms, plum trees, and leaf color changes.

Fukushima City is planning to construct a new city library in front of the Fukushima train station (popping up with orange) because the current building, which was completed in 1958, is too old now. Around the new site are three branch libraries (popping up with pink) and Fukushima prefectural library (popping with red), the biggest library in Fukushima prefecture. Considering with Fukushima prefectural library, I think the new city library can focus more on how it connects patrons and literature instead of stacking thousands of materials. There would be suitable because of different roles; the Fukushima prefectural library can save a lot of materials, and the new city library is more experience based. And there are two branch libraries near the site, so it would be possible to exchange materials in cooperation.

**Design Concept**

**Interior Gimmicks approach**

From the interior side, the closest part of architecture for patrons, is defined as interior gimmicks. These gimmicks are derived from activities in the public library and spaces inspiring patrons to read books. In detail about activity, what activities can happen in the public library either library provide or patrons-self. Eating food, studying, talking, using maker space, playing console games, accessing the Internet, etc. Library spaces have already taken these activities in recent years, and it will be essential to accept them from now on too. But as I said, how the space encourages patrons to read books is the most important because of public libraries' essential role in connecting patrons and literature. Attracting activities invites people to the library space as the first context, and attracting space keeps them in the library. Interior gimmicks help to consider how the library effectively attracts people, which kind of space attracts patrons, and which space efficiently encourages patrons to read books with visualized diagrams. When considering library space, concept, and user demands, interior gimmicks help a lot for all planners, such as architects, service designers, librarians, and patrons-self. The library space can organize flexibly and diversely by combining some interior gimmicks according to patrons' requests and local or country context.

**Urban Context approach**

Another way around, considering contexts from the urban scale, one of the most common ways, have been chosen for deciding the architectural shape because local contexts have enormous affection in determining the form of architecture. For example, what sceneries can be seen from the site, how much traffic there is, how much geometries there is, and how people go through there. I propose architecture and exterior that reflect the local context as a frame into which the interior gimmicks are inserted.

This design approach allows the interior design to create a well-considered user experience, activities, and inspirational environment to read books. At the same time, it enables the architectural design to develop well-considered architectural shapes reflecting local context and information as a frame to insert interior gimmicks. By approaching at the same time, it is possible to propose a public library that plays fundamental roles, connecting patrons and literature with community-friendly and accessible architectural forms.

**1** Re-thinking public library spaces with diversity and essential roles  
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School of Architecture  
Diploma Work  
25. 5. 2023  
Supervisor  
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Takashi Nomura  
野村卓史

**Interior Gimmicks**

**Activity experience**

Music sound flowing, Music sound flowing area, Digital storage usage, Local term exhibition, Games function experience, Exhibition desk form make space, Art exhibition, Digital device table, Big Shogi board (Chess board), System visibility, Dining allowed wall, Second cycle books exchange, Traditional material experience, Kids work exhibition, Small stage, Librarian table studio, Board game area, Digital panel accessibility, VR experience, Visibility of librarians' work, Programming lab

**Encourage environment**

Arrangement of books showing, Seating light step, Small hole comfortability, Book access pocket table, Narrow open space, Focused reading, Borrowing records from other users, Ergonomic colored space, Small step place with books, Dynamic overlooking room, Contents showing, Outdoor reading, User recommendation, App activation, Concrete-to-hybrid desk, Quick reading bench type, Pillar attached book shelf, Adornment book street, Points of desk and seating, AI note suggestion for pediment, Track eye shelf for best text, Small cubos for read and work, Walkable reading space, Tread showcase, Semi-organized by bookshelf, Soft floor material, Bookshelf entrance, Large book

**Architectural planning**

Visibility of activity, Natural light direction, Scooter parking, Semi indoor space, Semi outdoor space, Visibility for only kids side, Transparency opportunity, Flared bookshelf shape, Inside activity visible window, Vertical visibility, Higher space for sensory, Spatial open area, Interior geometry, Roof under the roof, Open void space for space integration, Territory without wall surrounding, Exchangeable bookshelf and seating, Scalable staircase, Library management robot, Flood allowed zoning, Mixed generation book arrangement, People-shelf arrangement, Mixed, natural zoning, Seamless floor arrangement, Different heights of posture, Wide steps on a staircase, Individual cubos for phone, work, Takashi Nomura

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### Urban Context

#### Surrounding building site

In Fukushima City, there are various sizes of buildings, from small sizes, such as houses, restaurants, and shops, to huge sizes, like shopping malls and multi-office buildings. Considering the prominent location in front of the train station and its function as a public library, the new city library building can be large, but the building should be set back a few meters considering the impact on the surroundings. It should avoid building such a massive wall with over-angled height. For these reasons, the building would become large, like 3,000-5,500 m<sup>2</sup> without car parking space, but not high, like 2-4 stories. The setting back area can create enough wide pedestrian space and become a buffer zone between the city and the building.

#### Public transportation and fluidity of inhabitants

Near the design site, there are two train stations. One is the station for sprinter and inner-city trains which connects close cities, and the other is the station for bullet trains which comes from the capital, Tokyo. Since the site is in front of the station, many people are expected to come and go from the station area. In addition, some people also seem to come and go around the site since there are many bus stops (blue points on the map). The site is located cross-section between train stations and bus stops according to the public transportation context. Therefore non-corner shops, such as circle-shaped buildings, would be suitable for this site to promote smooth fluidity for local inhabitants. People are also allowed to stop at the new library in a short time. Whether or not people stop by the library, the new library is recognized as the identity of the Fukushima City.

#### Major roads and site appearance

Red lines show major roads around the site, and a short bypass with low height is located right south. There is also a main road between the site and the station. How the building looks on these roads seems important because many cars, buses, and people are going through it, and they see its appearance. On the other hand, how patterns are made from the inside is also important because of taking as good as possible activities. Seeing landscapes or greenery would be better scenery than cars going on the road. Building shape needs to have a consensus between the appearance of streets and scenery from the inside.

#### Surrounding greenery

As I told at the beginning of this chapter, Fukushima City is a basin geography and is entirely surrounded by mountains. There are many nature and greenery on the edge of Fukushima City, but few greenery in the city center. The map showing green colors is greenery. Some trees are in front of the train station and the prefectural office, but few greenery are seen in other areas. By planting as many greenery as possible on the new city library site, which is a cross-section between the fluidity of people, they can experience nature daily by walking or going through the site. And greenery would be better scenery than just an urban atmosphere. Arranging with the courtyard would be more effective to feel greenery for the libraries because patrons can see plants from everywhere inside. On a sunny day, patrons can read books outside.

#### Area Plan 1:800

The site and the library building integrate the surrounding atmosphere as an urban buffer zone. Since the site is in front of a train station and in the middle of the city center, there is a pretty hectic atmosphere around the site. There are business buildings, shopping malls, and some other commercial buildings. On the opposite, the south side across the bypass is peaceful and calm, with apartments, houses, and small stores. The site becomes a sector that connects these atmosphere gaps and acts like an oasis in the city.

The library building is angled at about 45 degrees from the north to make open green areas like a park atmosphere with plants. There is a greenway from the train station at the northwest corner with continuous greenery from the station. On the southeast corner is a peaceful park to buffer between the site and the hectic road. The northeast corner and the southwest corner have narrower spaces than other corners so that pedestrians can avoid inside atmosphere, and if they feel like going into the library, they can access it quickly.

Car parking is on the site's east side because people in the Fukushima city area often use cars. There are trees between the car park and the library building to keep pedestrians safe. People can easily access the new library by using public transportation like bus or train. Cars are also acceptable from rural areas, and bikes are also for neighboring users.

**3** Re-thinking public library spaces with diversity and essential roles  
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### Floor Plan 1:300

1st Floor	2nd Floor
User accessible area: 2,285 m <sup>2</sup>	User accessible area: 2,285 m <sup>2</sup>
Open hall area: 1,989 m <sup>2</sup>	Open hall area: 1,928 m <sup>2</sup>
Office: 1,045 m <sup>2</sup>	WC: 77 m <sup>2</sup>
Programming room: 45 m <sup>2</sup>	Open lounge area: 17 m <sup>2</sup>
Maker space: 39 m <sup>2</sup>	EV: 2 m <sup>2</sup>
Record media: 46 m <sup>2</sup>	Emergency stairs: 2 m <sup>2</sup>
Scraping room: 48 m <sup>2</sup>	
Meeting rooms (3 rooms): 49 m <sup>2</sup>	
Library area: 313 m <sup>2</sup>	Other area: 17 m <sup>2</sup>
Office: 1,045 m <sup>2</sup>	WC: 77 m <sup>2</sup>
Storage shelf area: 148 m <sup>2</sup>	Open lounge area: 17 m <sup>2</sup>
Book room area: 17 m <sup>2</sup>	EV: 2 m <sup>2</sup>
Workspace: 12 m <sup>2</sup>	Emergency stairs: 2 m <sup>2</sup>
Radio studio: 8 m <sup>2</sup>	
Emergency stairs: 2 m <sup>2</sup>	
Counted: 433 m <sup>2</sup>	

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### D01 Detail section 1:50

3rd Floor	Car and bicycle lots	Total
User accessible area: 444 m <sup>2</sup>	Car lots: 20	6,392 m <sup>2</sup>
Open hall area: 382 m <sup>2</sup>	Bicycle lots: 42	
Other area: 62 m <sup>2</sup>		
WC: 36 m <sup>2</sup>		
EV: 7 m <sup>2</sup>		
Emergency stairs: 20 m <sup>2</sup>		

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### North Elevation: Facade material 1:400

- Wood preserve painted pine wood louver, natural color
- Shoe chadding roof, light black color
- UV-cut film clear roof glass
- Aluminum door frame, light black color
- UV-cut film safety glass, clear
- Stainless steel panel, light black color
- Steel curtain wall frame, black color

### D01 Whole section 1:200

### A01 Local section 1:100

### A04 Local section 1:100

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