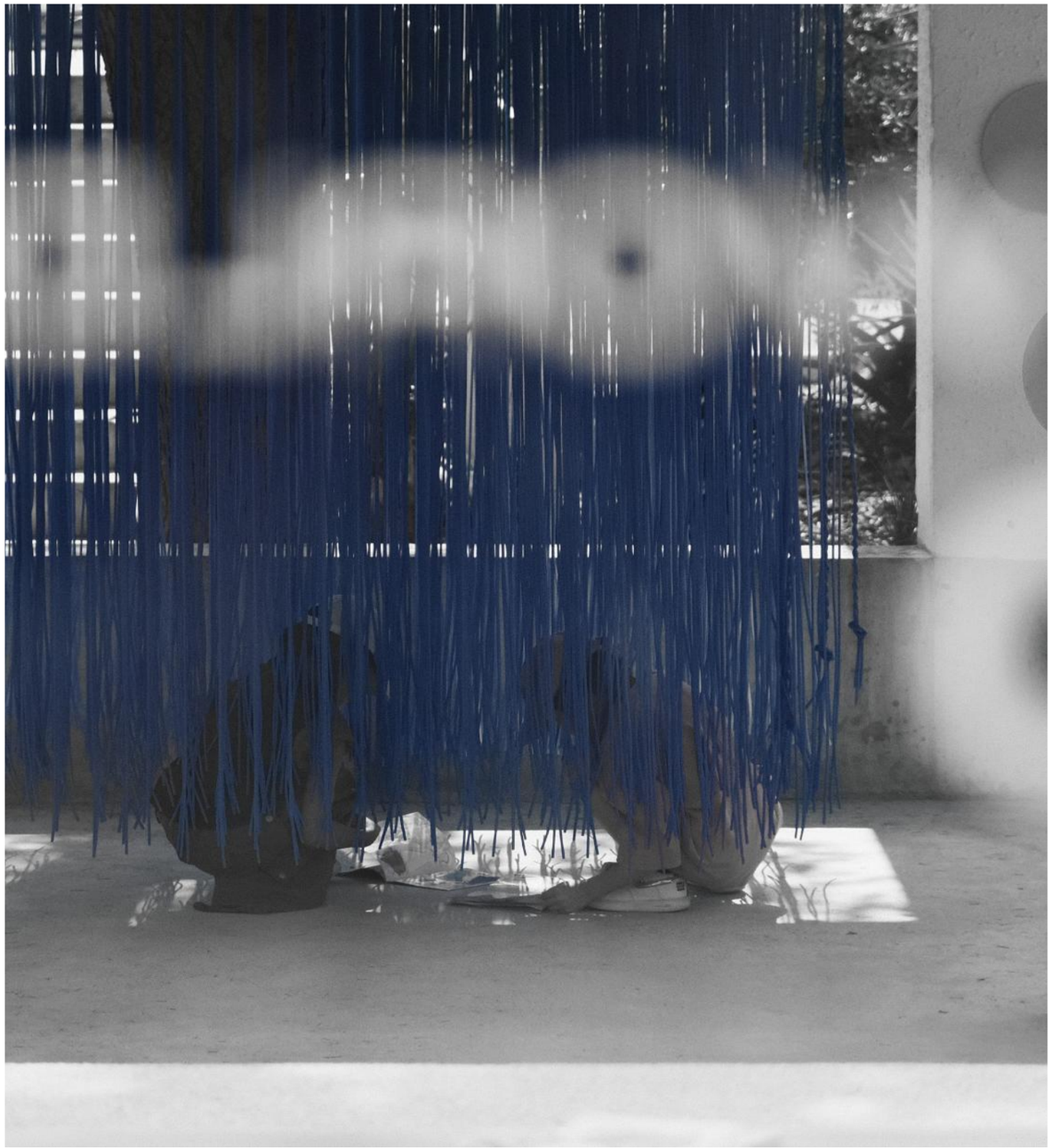
Shufan YAO

Portfolio

selected works 2020-2025



Two children playing in the shade of a building

"A building should look like it grew from there and be in harmony with its surroundings. In other words, architecture needs to have a spirit of place."

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Exploring the pulse of pop-up urbanism

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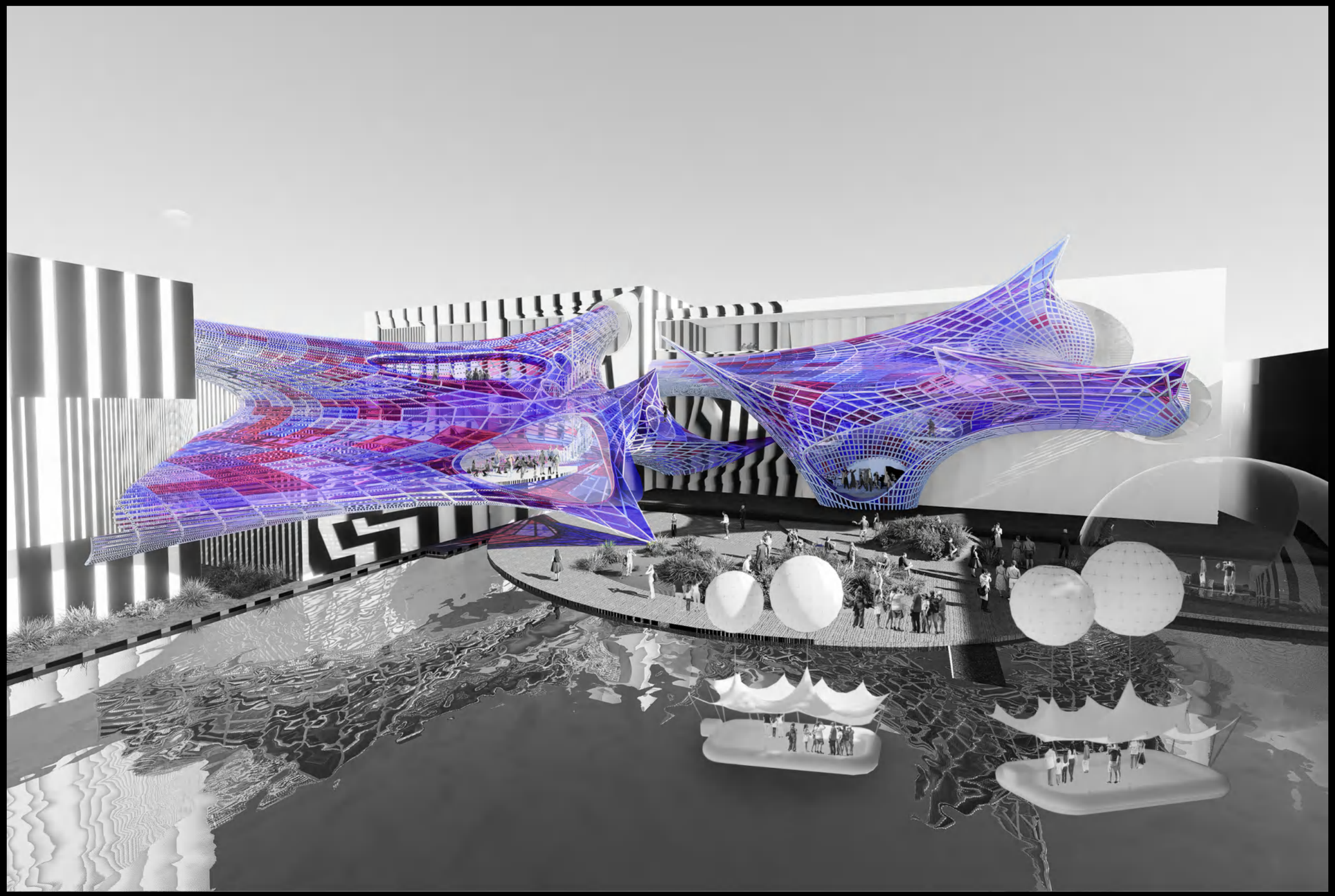
2020.9 -2024.1

01 Urban Resonance

Exploring the pulse of pop-up urbanism

2024.11-2025.6 | Urban design

"Music is about listening, the city is about listening too. Every space sings if you know how to hear it."

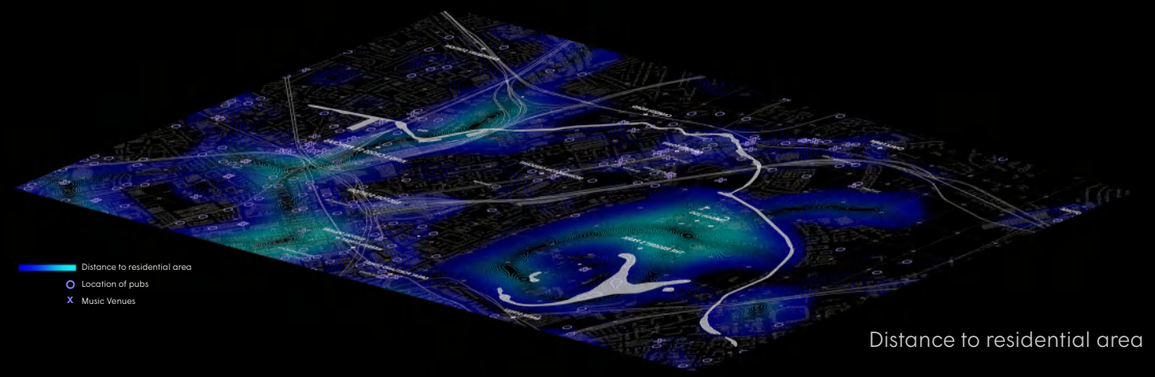


Urban Resonance is the rhythmic pulse of a city - where the creation and dissipation of ephemeral events generate transformative spatial, social and cultural vibrations. This leads to the research question of this design: How can pop-up urbanism stimulate urban renewal and cultural vitality through a series of ephemeral music festivals that revitalise under-utilised urban spaces, increase cultural participation and create an atmosphere of celebration?

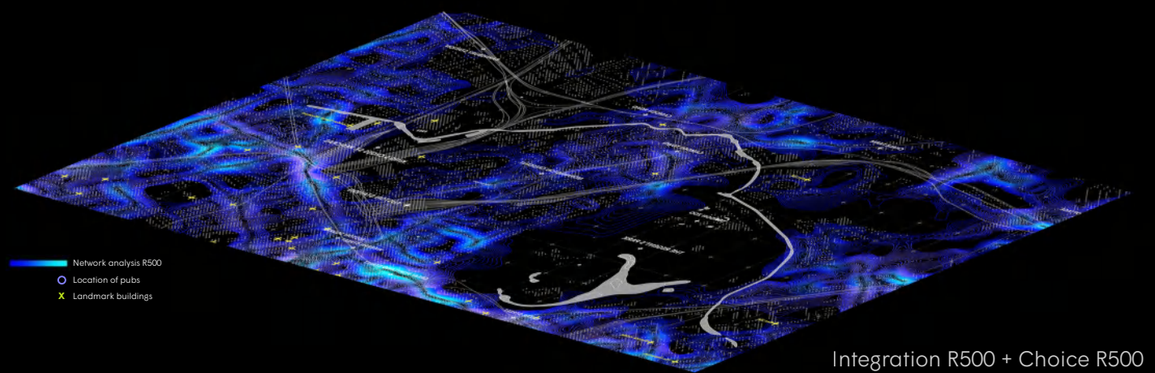
The site is located along the Regent's Canal in central London and is surrounded by a mix of functional areas, with a wide market area to the south, a predominantly residential area and large public buildings to the north. The site is in an area that is at the centre of a culturally diverse, musical and artistic development and wanted to use this to provide a fresh musical experience and festival atmosphere for the surrounding residents. Most of the surrounding community buildings are decades old and provide production, distribution and consumption services to the complex surrounding population, giving the residents a stronger sense of identity with the community.

Context and Intension

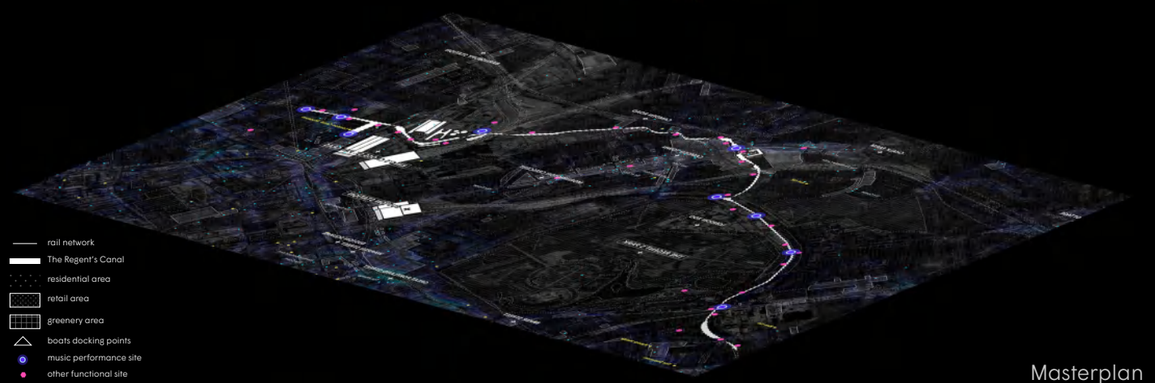
The Regent's Cnanal is located in London city center. Thhe riverbank area along the canal is chosen for the rich musical and cultural resources and the value of the transformation of the in-between space. In addition, the rich ethnic groups distribution and high quality of transportation also influence a lot.



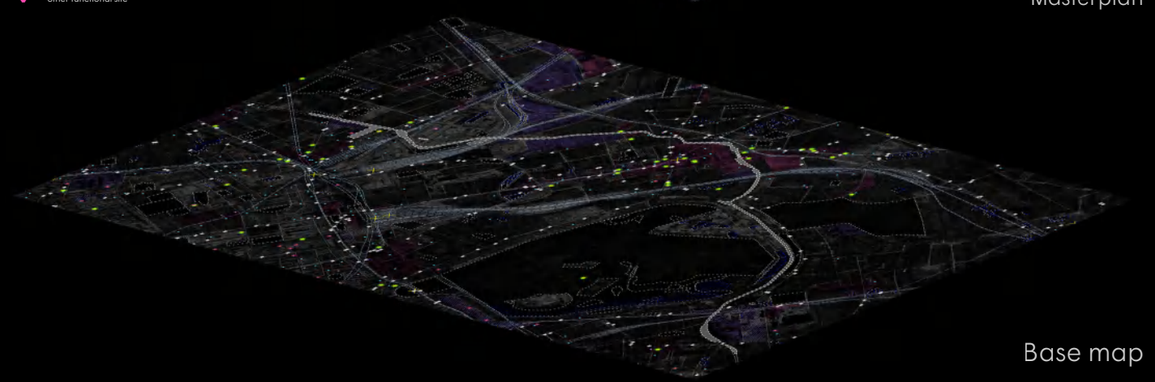
Distance to residential area



Integration R500 + Choice R500



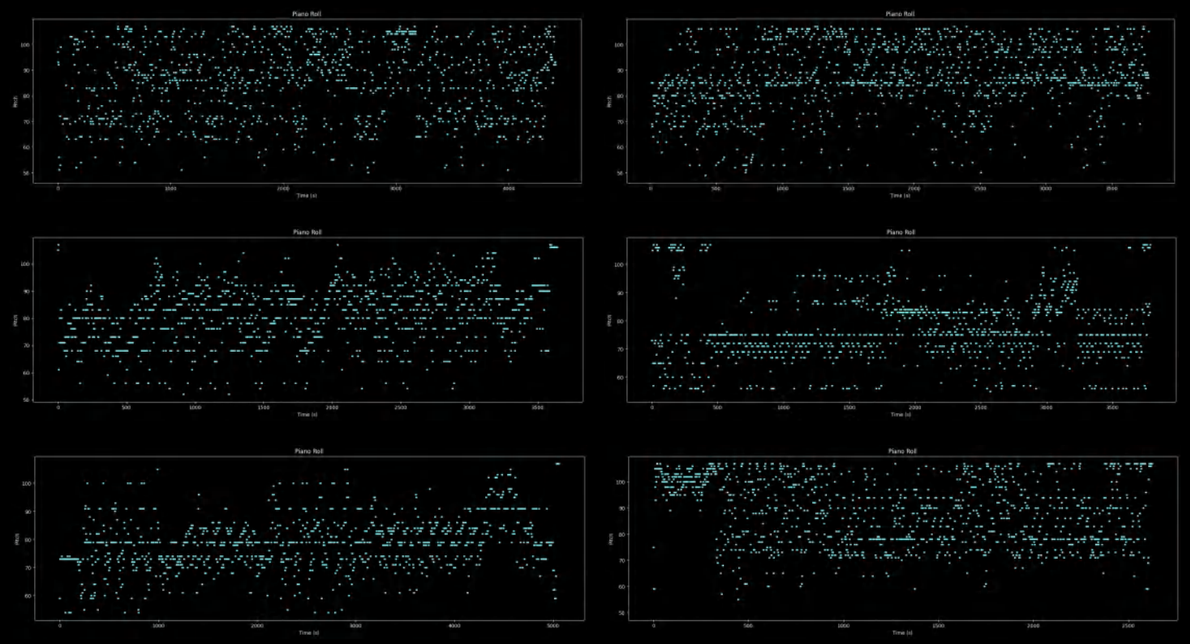
Masterplan



Base map

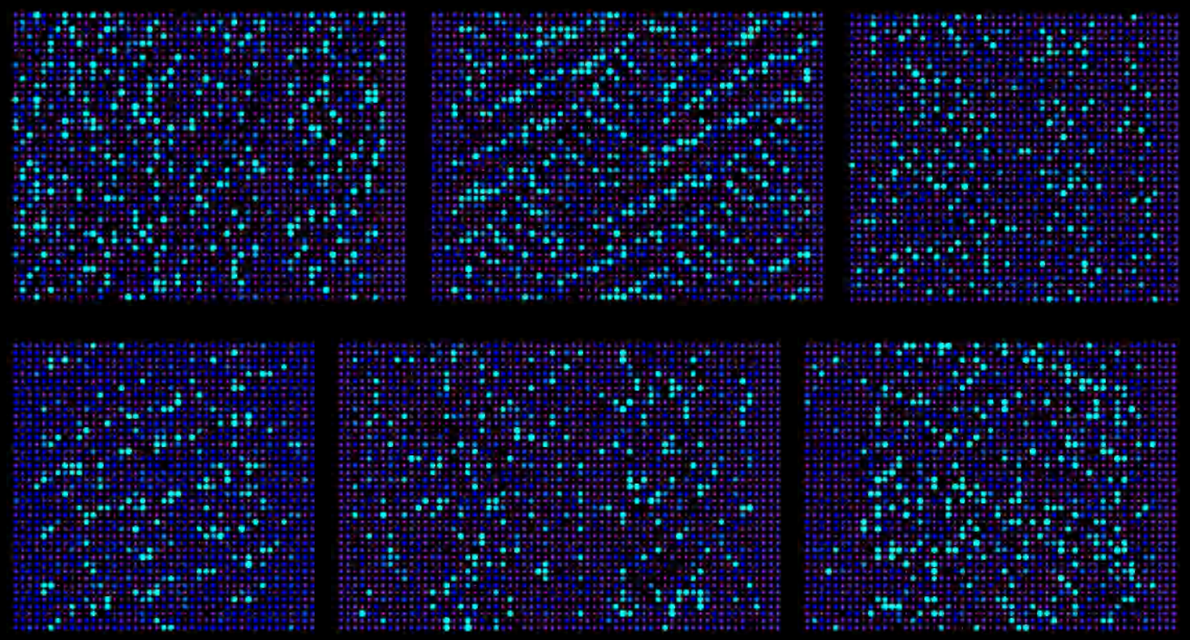
Data extraction from midi notes - pitch level

Building on the concept of using music festivals and sound for form development, the audio files are extracted from the top six songs across four YouTube music categories and converted them into MIDI data to capture pitch variations over time.



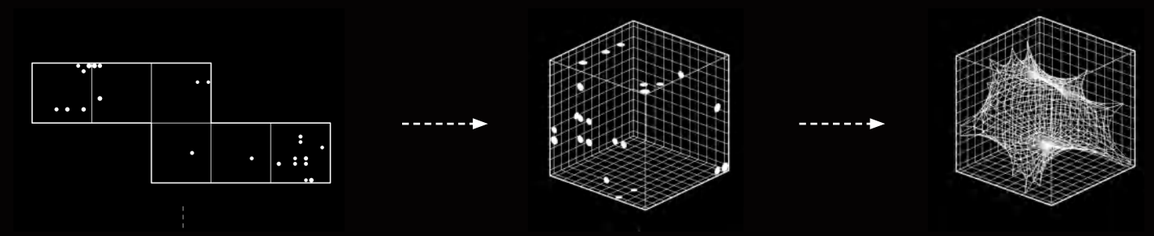
Data extraction from spectrogram - velocity

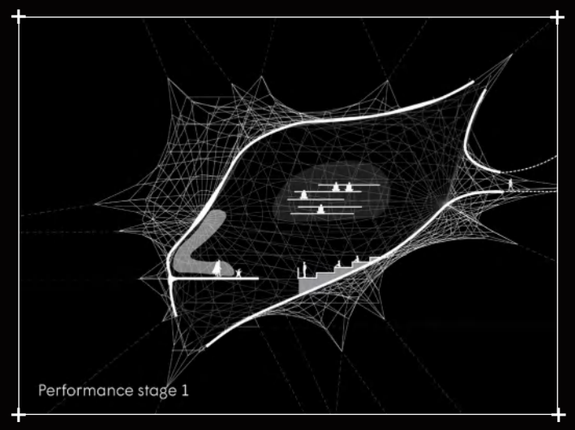
From the same audio files, the velocity data during the timeline is scraped. The blue color and bigger point size means the higher velocity. Bright blue dots mark high-velocity areas against a deep blue-purple background. Punk is dense and uniform, reggae is relaxed and scattered, grime shows flowing waves, and techno features complex, irregular patterns.

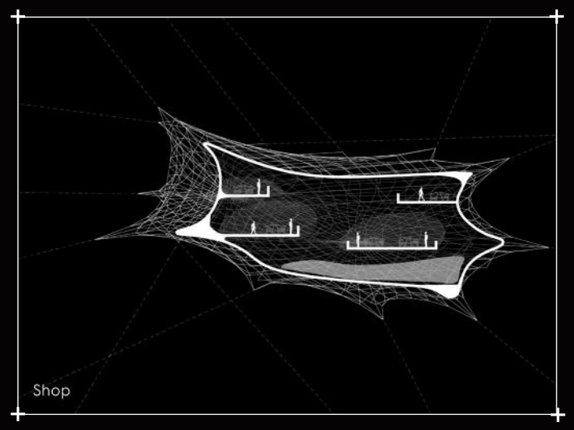


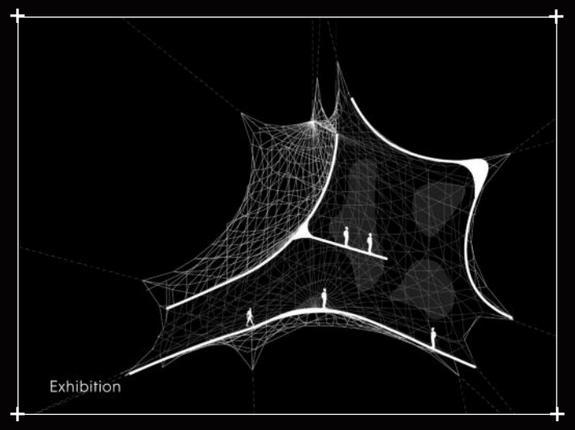
Modular pop-up design in urban fabric

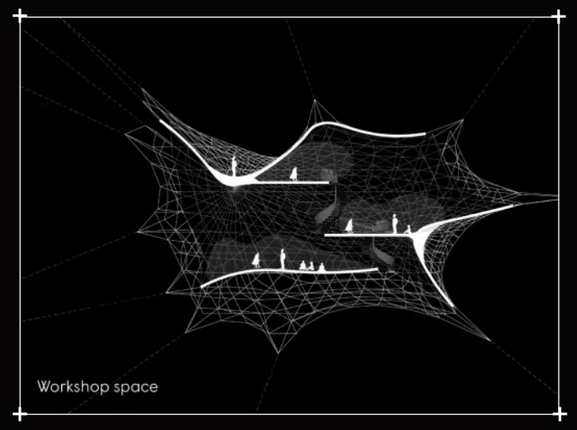
At the urban scale, these pop-up structures provide flexible, playful spaces. Varying in size, they can become walkable rooftops or vibrant zones in streets and alleys. Using materials like mesh facades and color lighting, they transform into multifunctional festival hubs hosting concerts, markets, and exhibitions. Thus, music and celebration activate the city through dynamic pop-up interventions.

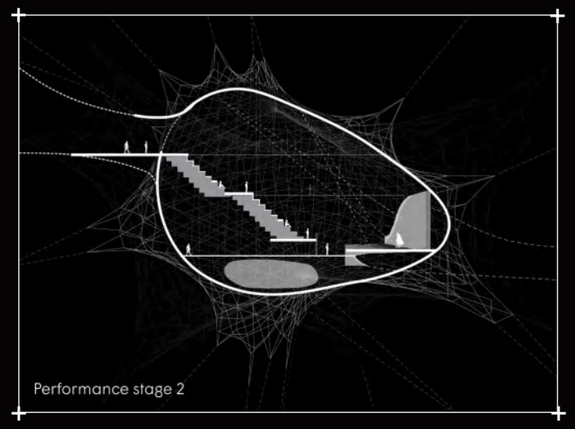


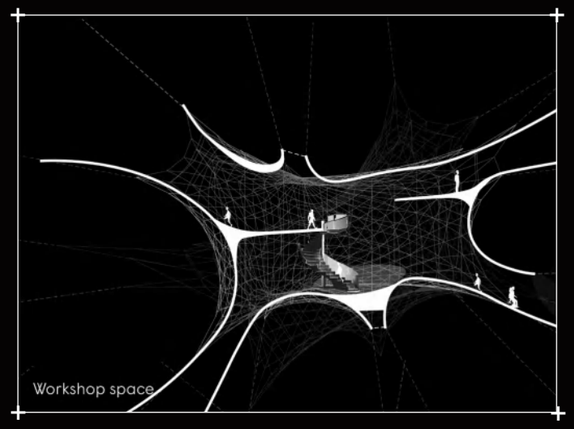


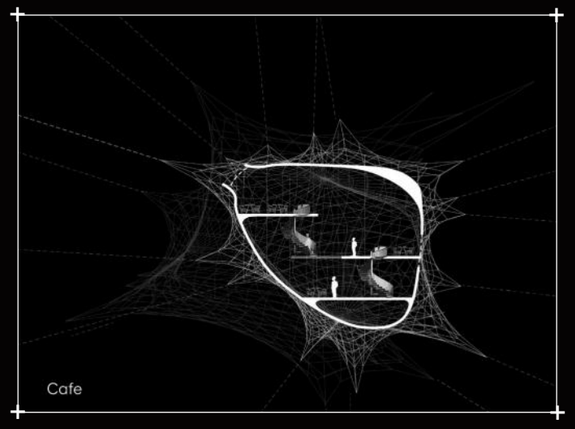


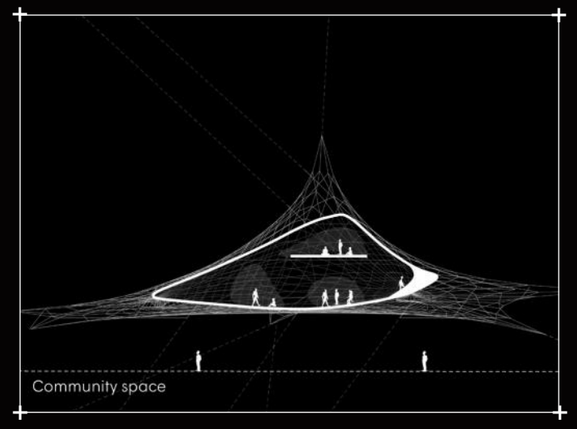


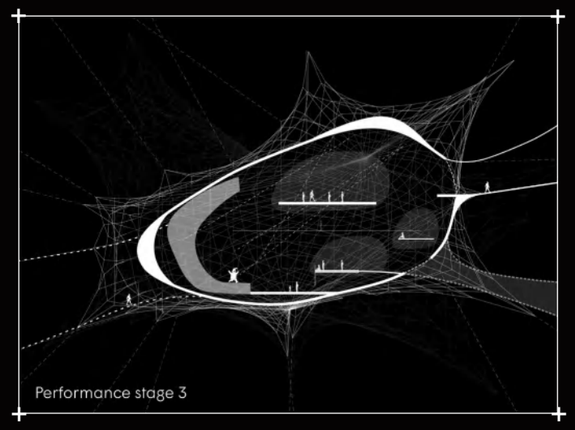


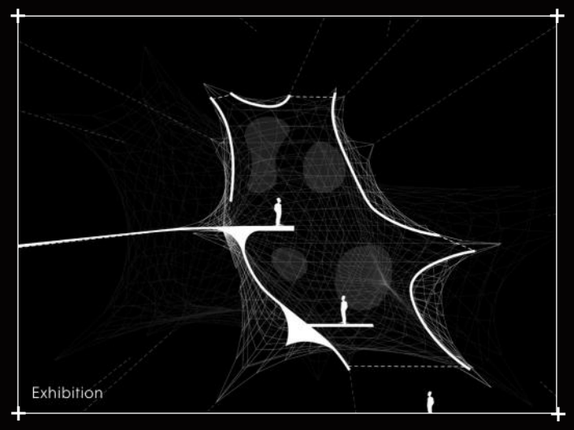


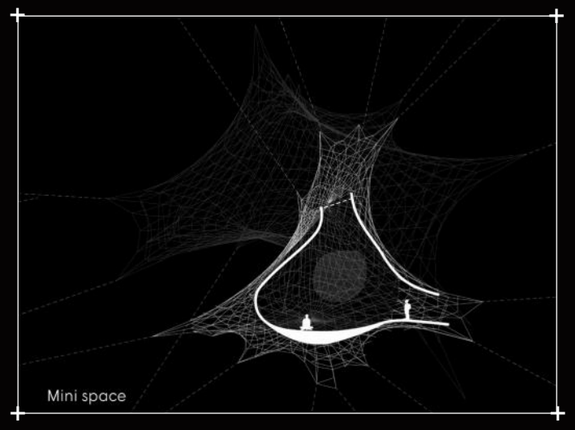


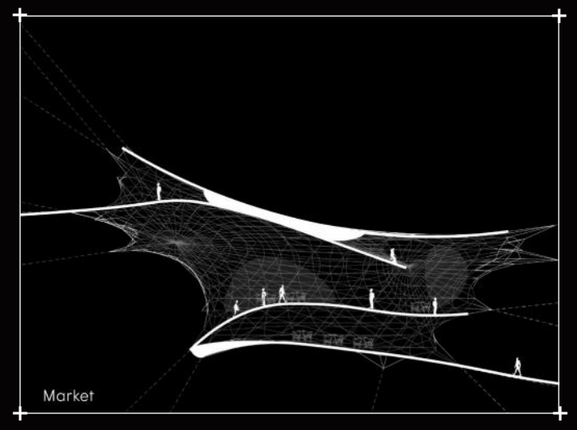






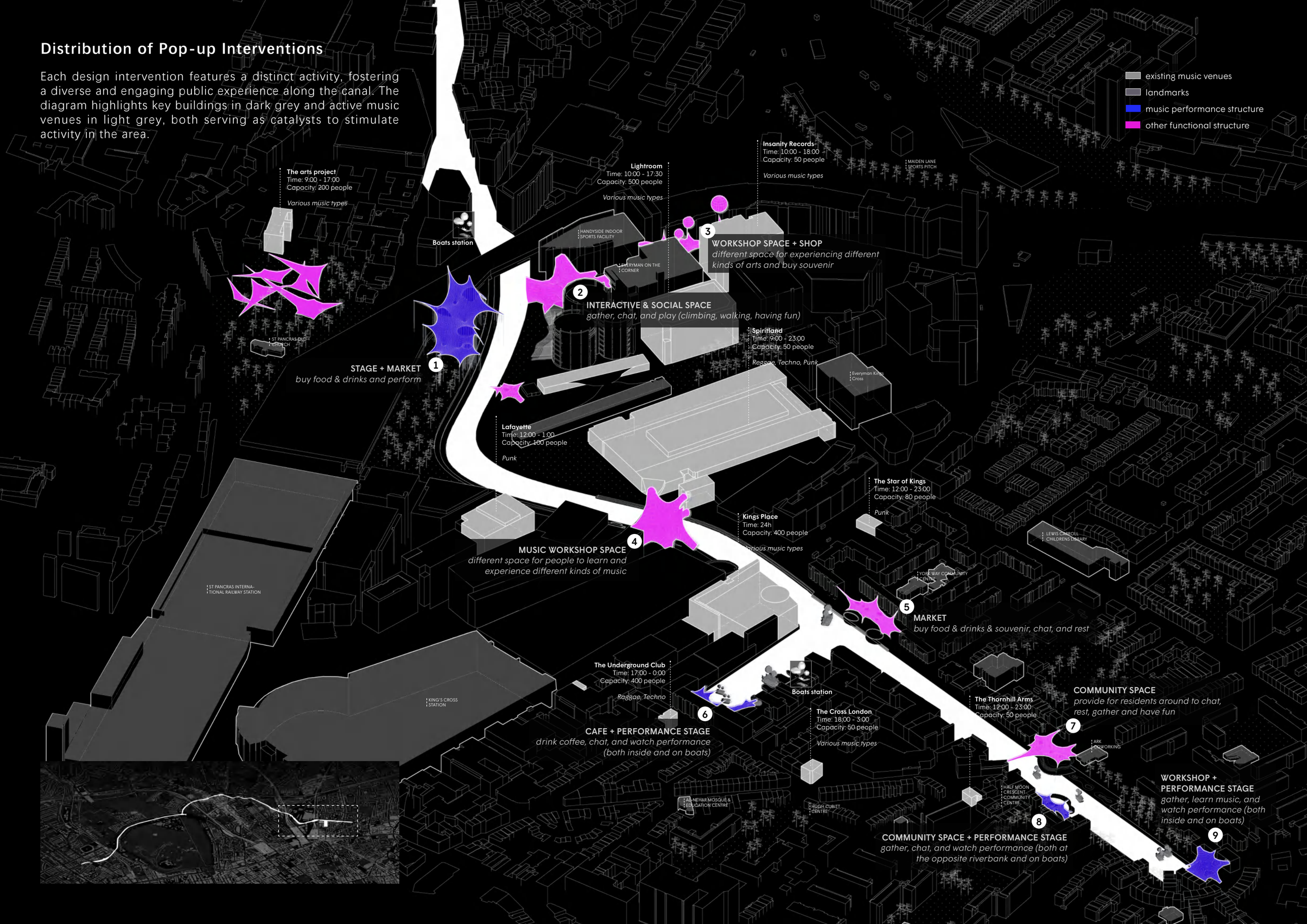






Distribution of Pop-up Interventions

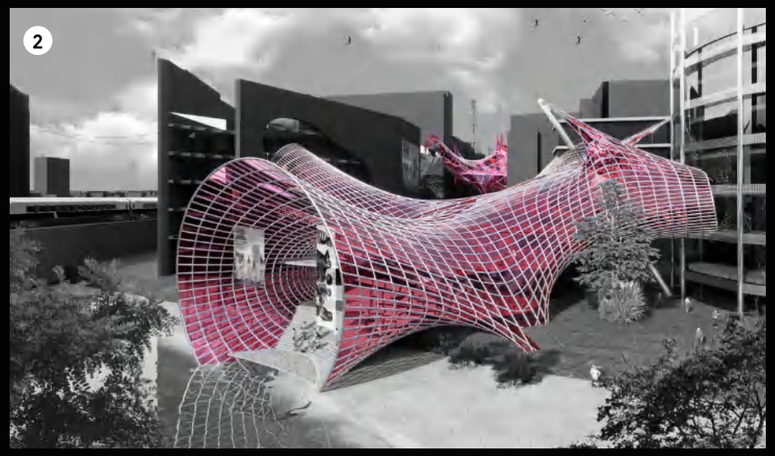
Each design intervention features a distinct activity, fostering a diverse and engaging public experience along the canal. The diagram highlights key buildings in dark grey and active music venues in light grey, both serving as catalysts to stimulate activity in the area.



Pop-up Interventions & Interaction

Purple interventions accommodate music performance stages. Pink interventions host a variety of other activities, which may also inspire spontaneous musical events within these spaces. The different functions and colors of the pop-up design provide different activities along the canal, in order to provide people with different music and cultural experiences while visiting the river. In turn, it brings new vitality to this space along the river. The colors of the fabric facade change with music types. When people walk along the canal, they will experience diffirent atmosphere. For instance, they stand in front of the stage, they could also see the workshop or cafe space along the canal at a distance.

1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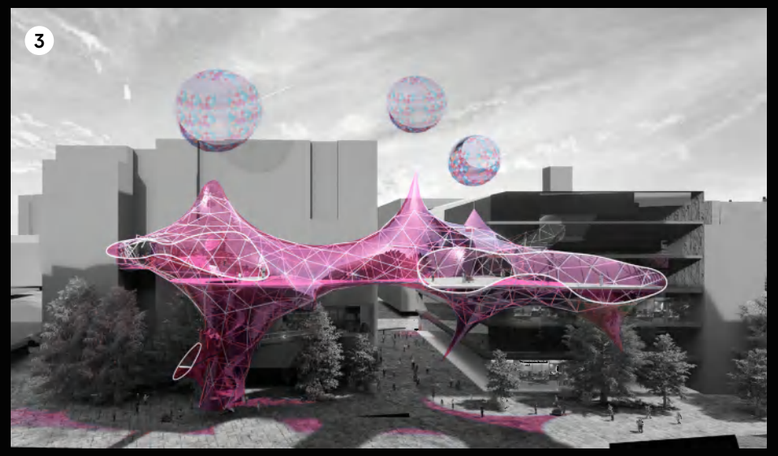
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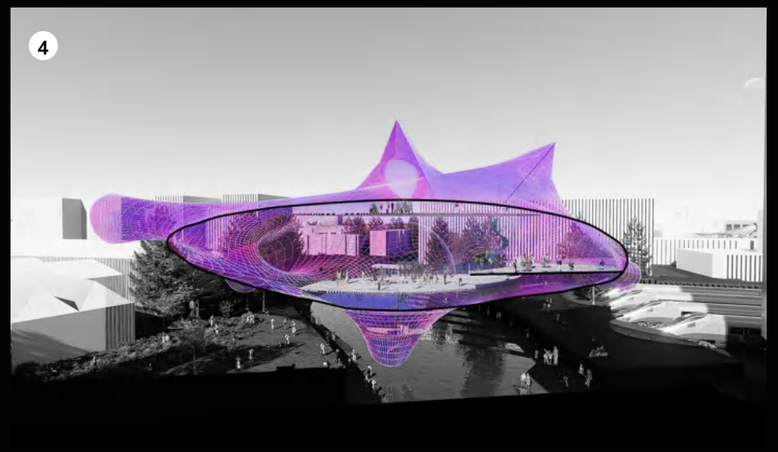
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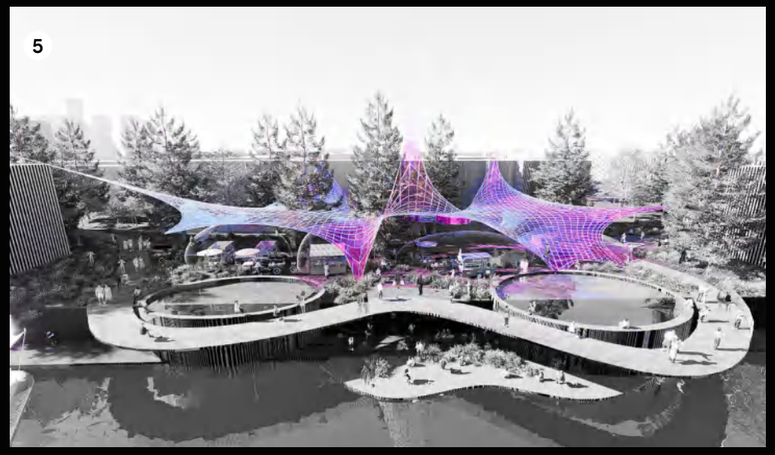
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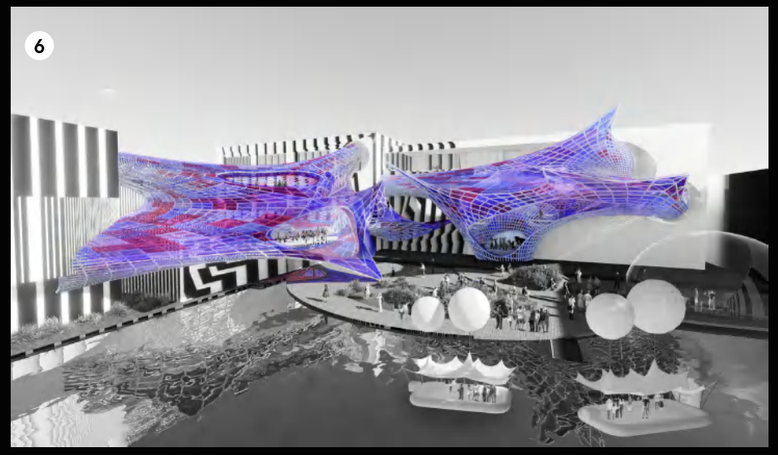
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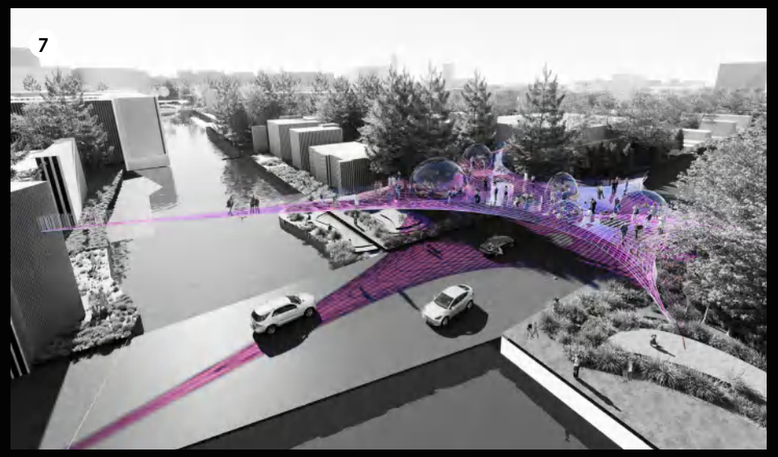
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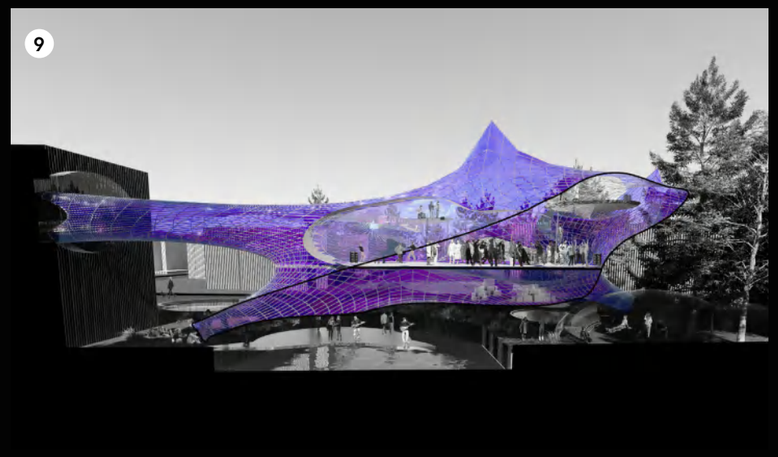
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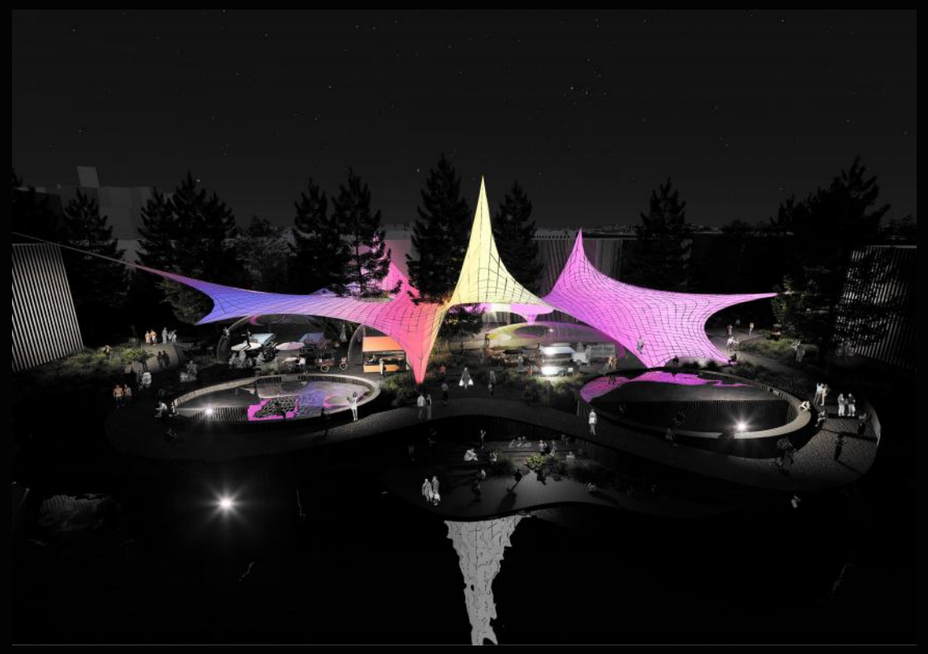
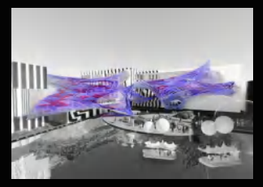


Market

This is a market space where people can buy food & drinks & souvenir, chat, and rest.

Capacity: 300 people
Duration: 9:00 - 21:00



Cafe + Performance Stage

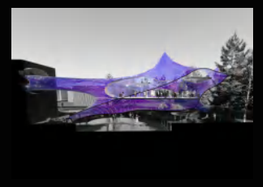
It is provided for people to drink coffee, chat, and watch performance (inside, outside and on boats)

Capacity: 200 people
Duration: 10:00 - 18:00

Community Space

It is provided for residents around to chat, rest, gather and have fun in group.

Capacity: 300 people
Duration: 8:00 - 22:00



Workshop + Performance Stage

This is a stage provided for people to gather, learn music, and watch performance (both inside and on boats)

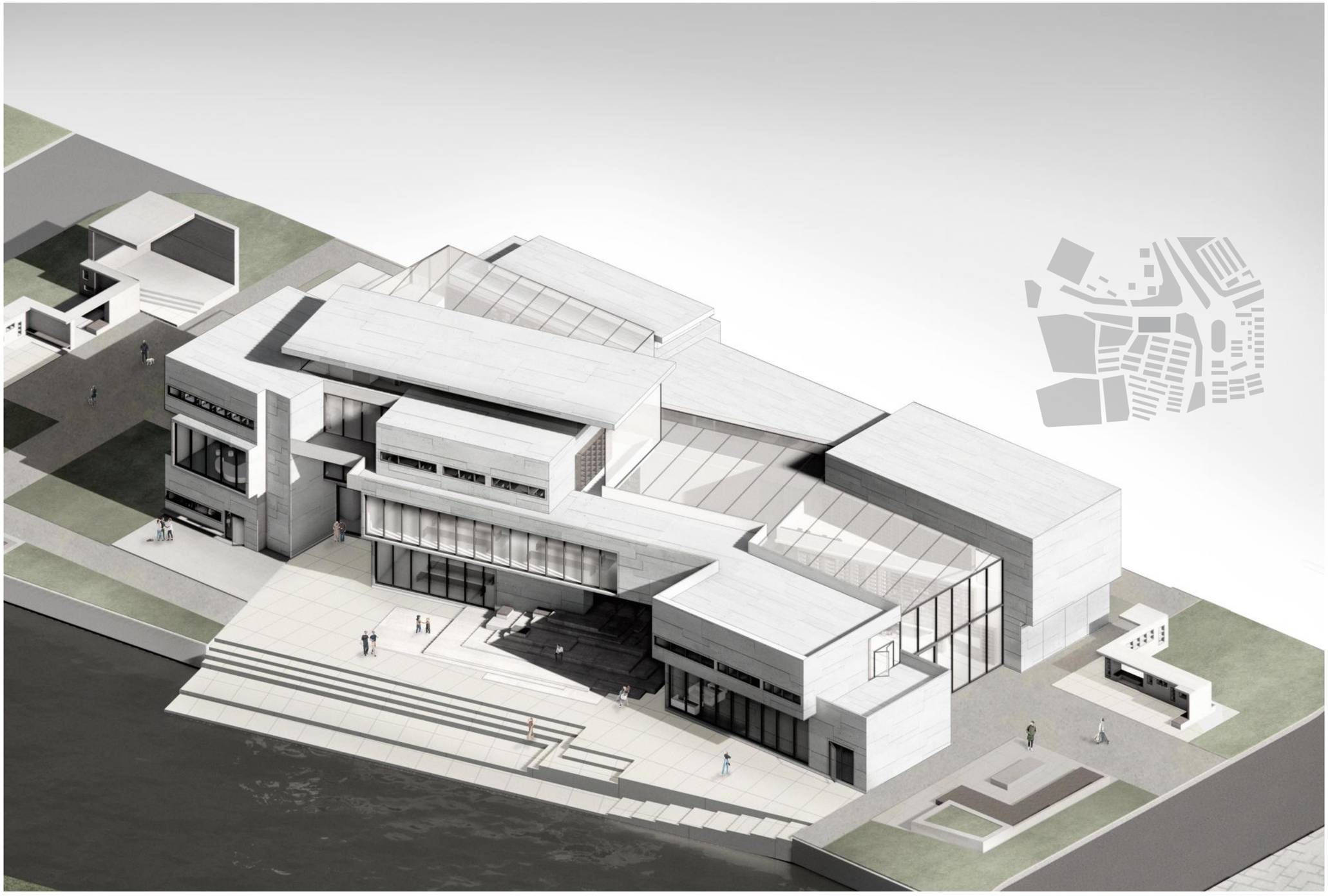
Capacity: 200 people
Duration: 12:00 - 18:00

02 Book Street

A library in the form of a city street

2023.3-2023.6 | Individual work | Public building

"I like ruins because what remains is not the total design, but the clarity of thought, the naked structure, the spirit of the thing."



The project links the concept of public architecture with the place-making and 'market-inspired' ideas for the community and the city of Ningbo, coupled with a critical understanding of ruins and heterogeneous cities as well as exploration urban conditions and cultural relations. Ningbo has historically been a city of close-knit bazaars and transactions, and today many bazaars remain in the city centre.

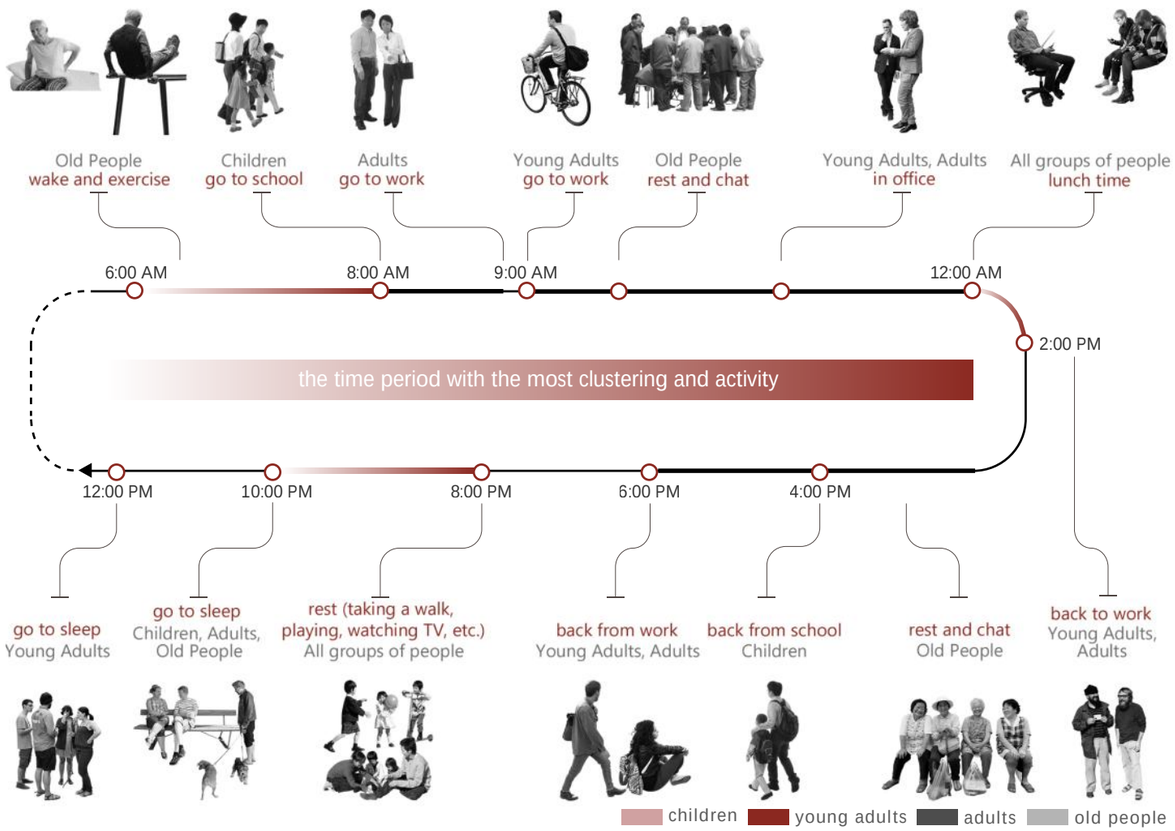
The site of this design is located along an inland river in Ningbo's old city centre, with what was once a wide market area to the west, and a historic street to the south, which is now a bustling commercial area. The surrounding community buildings, most of which are decades old, provide production, circulation and consumption services to the complex population around, giving the residents a stronger sense of identity with the community.

Context and Intention

The purpose of this project is to provide a learning and leisure center for people by The School Of Life to explore the experience of slow life. The project named "Book Street" is no longer a traditional library, but will be created in the form of a city street together with other programs, where people will shuttle to various spaces like in a busy street.

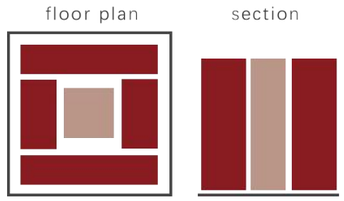
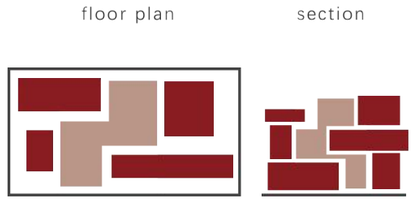
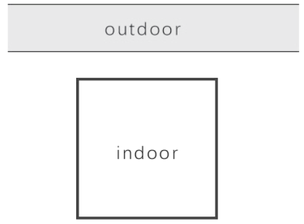
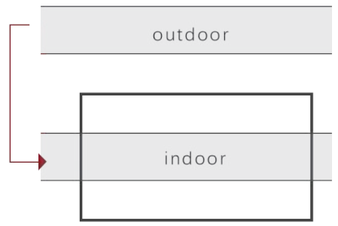
Needs of users

Space for programs: interior rooms for different programs which need private space.
Space for small-group chating: platforms and corridors for small group of people (2-10 persons) to read, chat, learn about philosophy and find a slow life.
Big-scale space: public lobby is needed to provide to different kinds of groups to communicate and interacte, also for lecture and reading.



Connection between library and street

Traditional libraries are generally a relatively enclosed space with less contact with the outside world and are relatively quiet. The library designed for this project incorporates the street concept, creating an open and noisy atmosphere.

	Traditional library	"Bookstreet" library
Layout	 A regular and enclosed shape that surrounds an atrium with regular functional areas around it.	 Long scales can easily create a sense of 'street', and the distribution and size of functional areas are irregular.
Function		
Relationship with street	 Buildings and streets do not affect each other, and generally libraries are built next to the streets.	 Buildings and streets interact with each other, and streets appear as the main element in the spatial design of libraries.
Example	Ningbo Library	Faculty of Arts Building Lochal Library
Pros/Cons	Pros 01 Can preserve literature for a long time 02 A quiet atmosphere and clear division of functional areas are more conducive to learning Cons 01 Printed literature is too large and takes up too much space 02 The opening and utilization of libraries are restricted	Pros 01 People's communication and interaction are more convenient 02 Users can engage in various activities in different functional areas Cons 01 Functional area division is more complex and inconvenient for certain populations 02 The environment is more noisy

Indoor and outdoor relationships

Enclosed **Indoor** Street
+ clearly distinguished
- less attractive

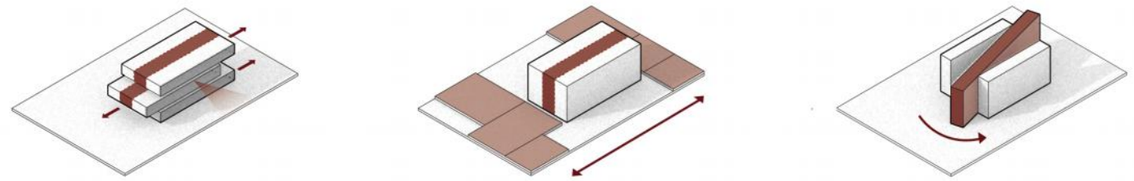
+

Open **outdoor** street
+ more attractive
- circulation becomes mixed

=

Semi-open street
+ more attractive
+ circulation is more clear

Relationship with surrounding landscapes

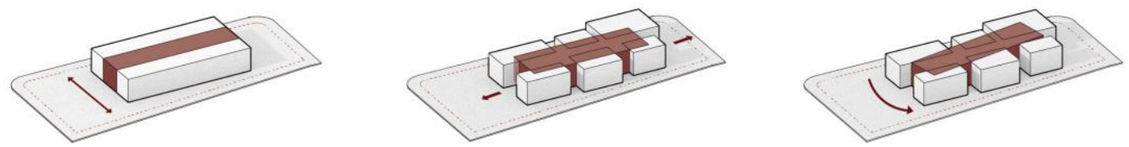


Between
river(+) and **residential area**(-)
+ void glazing wall for good view
- solid wall to keep privacy

Long site
+ increase the length of the street
+ add landscape to extend the street

Turn the angle
+ keep the "street" idea stronger
+ increase the length of the street

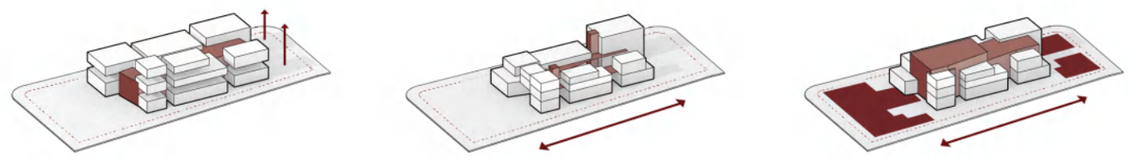
Generative process of design



Divide the **"street"** part
and **"program"** part

Seperate different function areas
into **small parts**
+ provide vertical openings
along the street

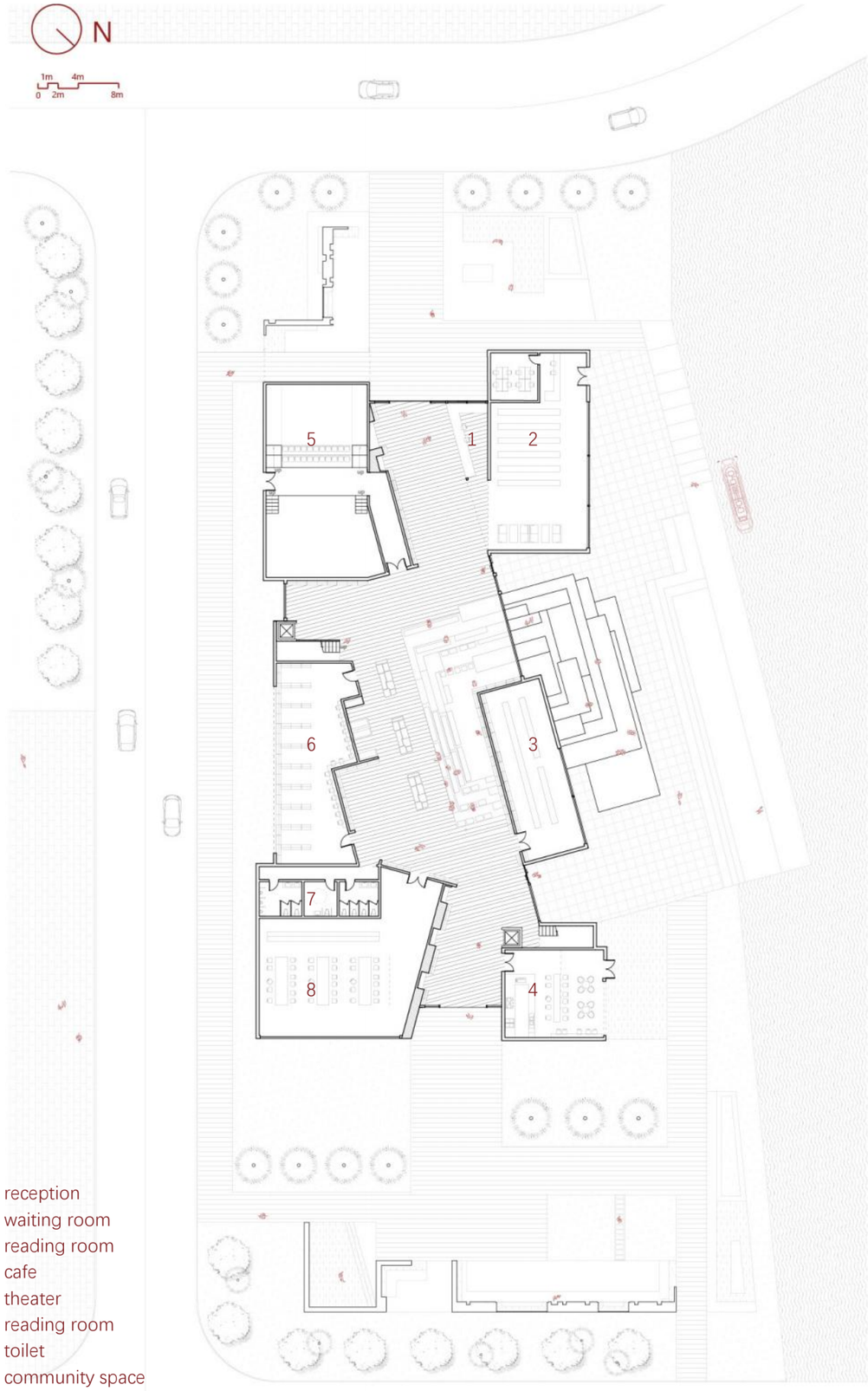
Turn the direction of the street
+ follow the arrangement of the
residential area
+ increase the length of the street



Increase the **tortuosity** of programs
+ public (ground floor) to
private (2nd floor)
+ entrances at gap spaces
along the street

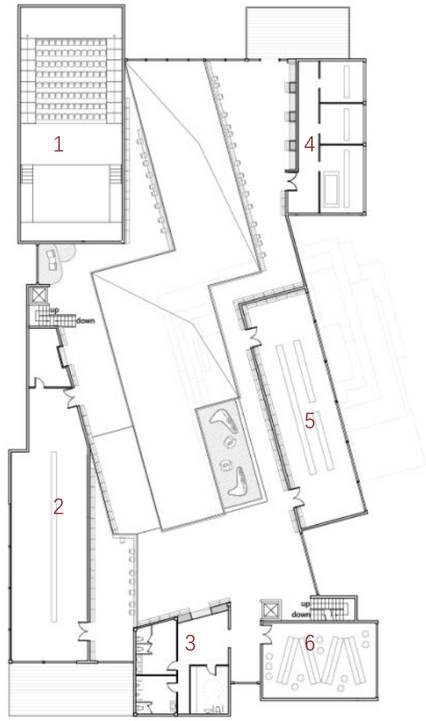
Add the horizontal and vertical
circulation of internal space
+ keep the feeling of the street
+ provide different levels and interaction

Landscape design follows
the direction of the street
+ extend the length of the street



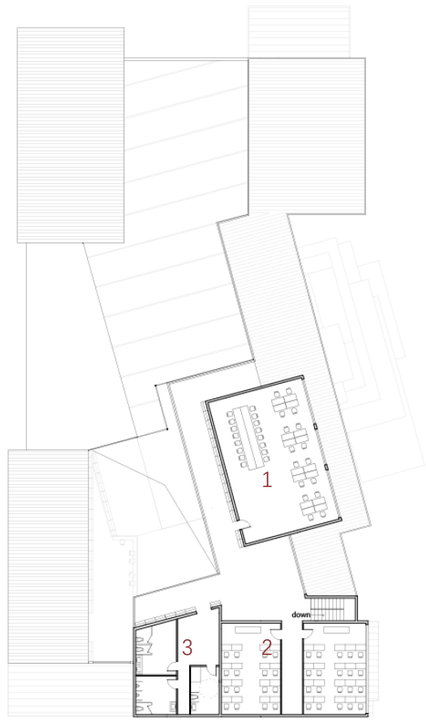
1. reception
2. waiting room
3. reading room
4. cafe
5. theater
6. reading room
7. toilet
8. community space & artmaking space

Ground Floor Plan



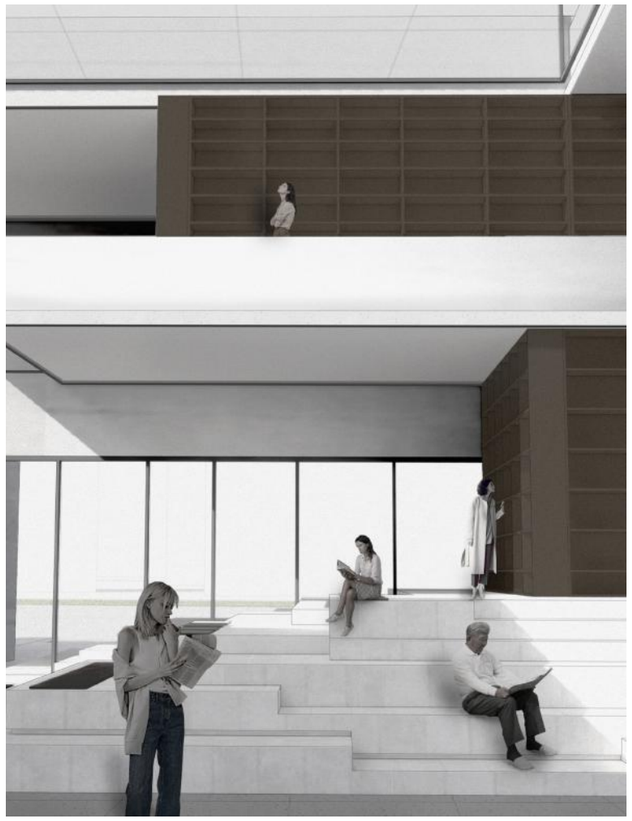
1. theater
2. gallery
3. toilet
4. meditation room
5. reading room
6. learning space for kids

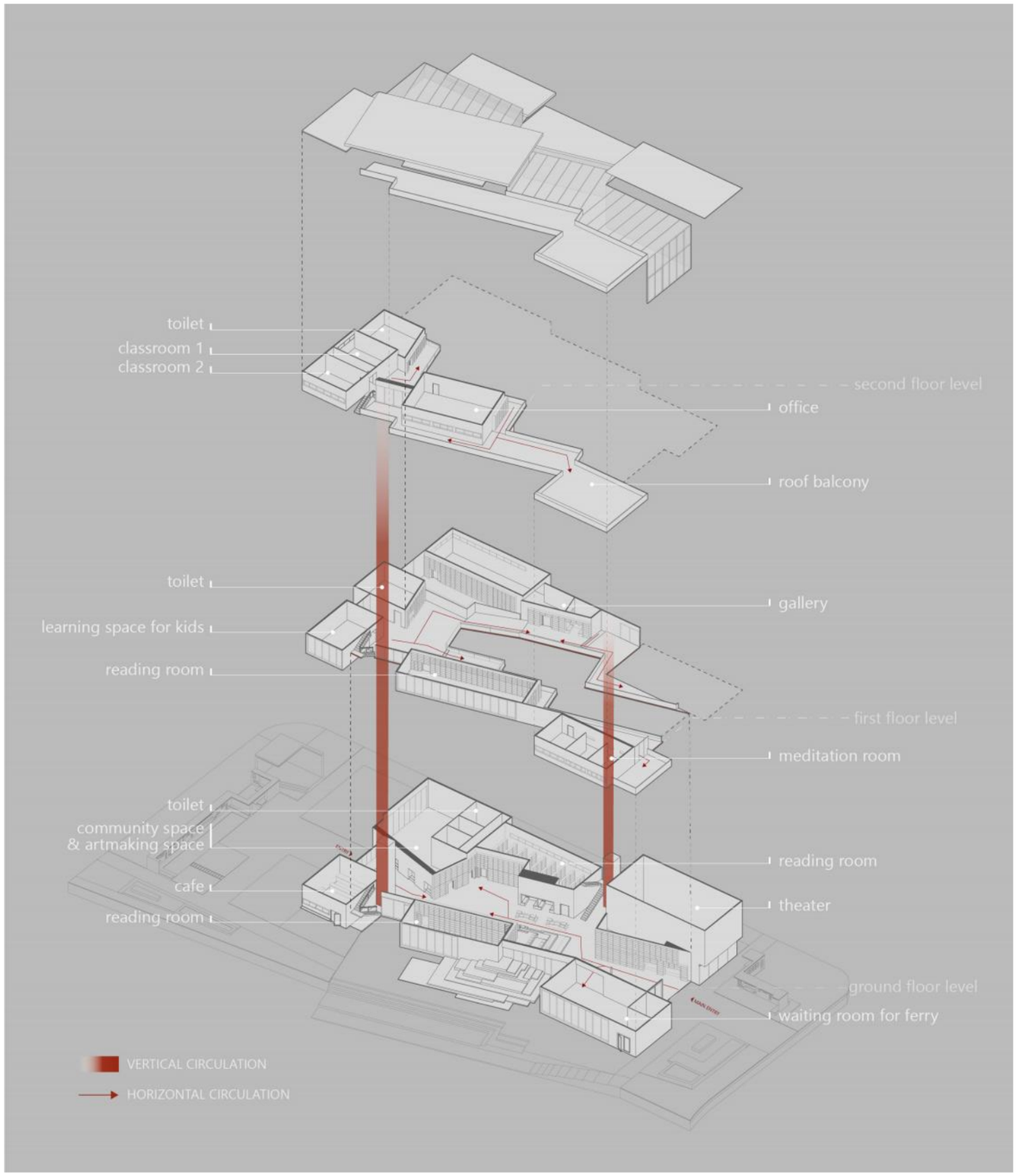
First Floor Plan

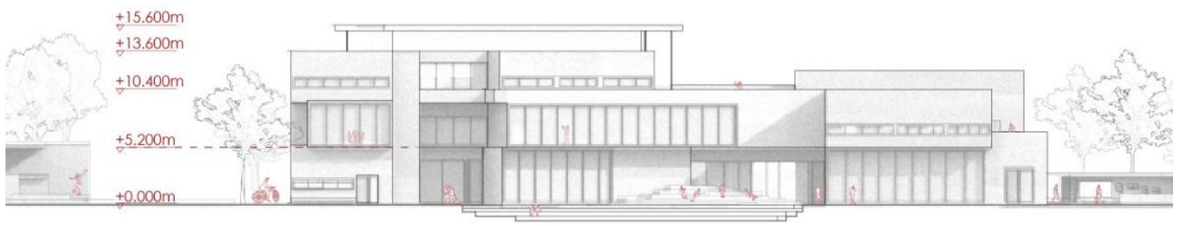


1. office
2. classrooms
3. toilet

Second Floor Plan







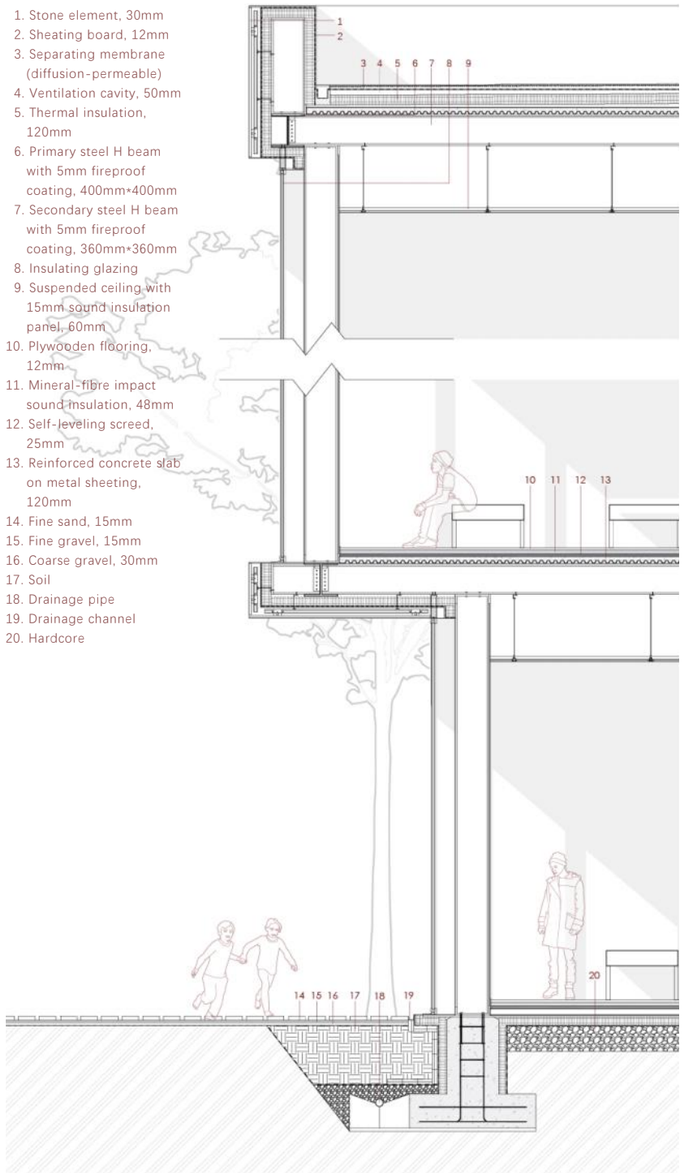
Connection of the book street and programs

- Space for programs: interior rooms for different programs which need private space.

- Space for small-group chating: platforms and corridors for small group of people (2-10 persons) to read, chat, learn about philosophy and find a slow life.

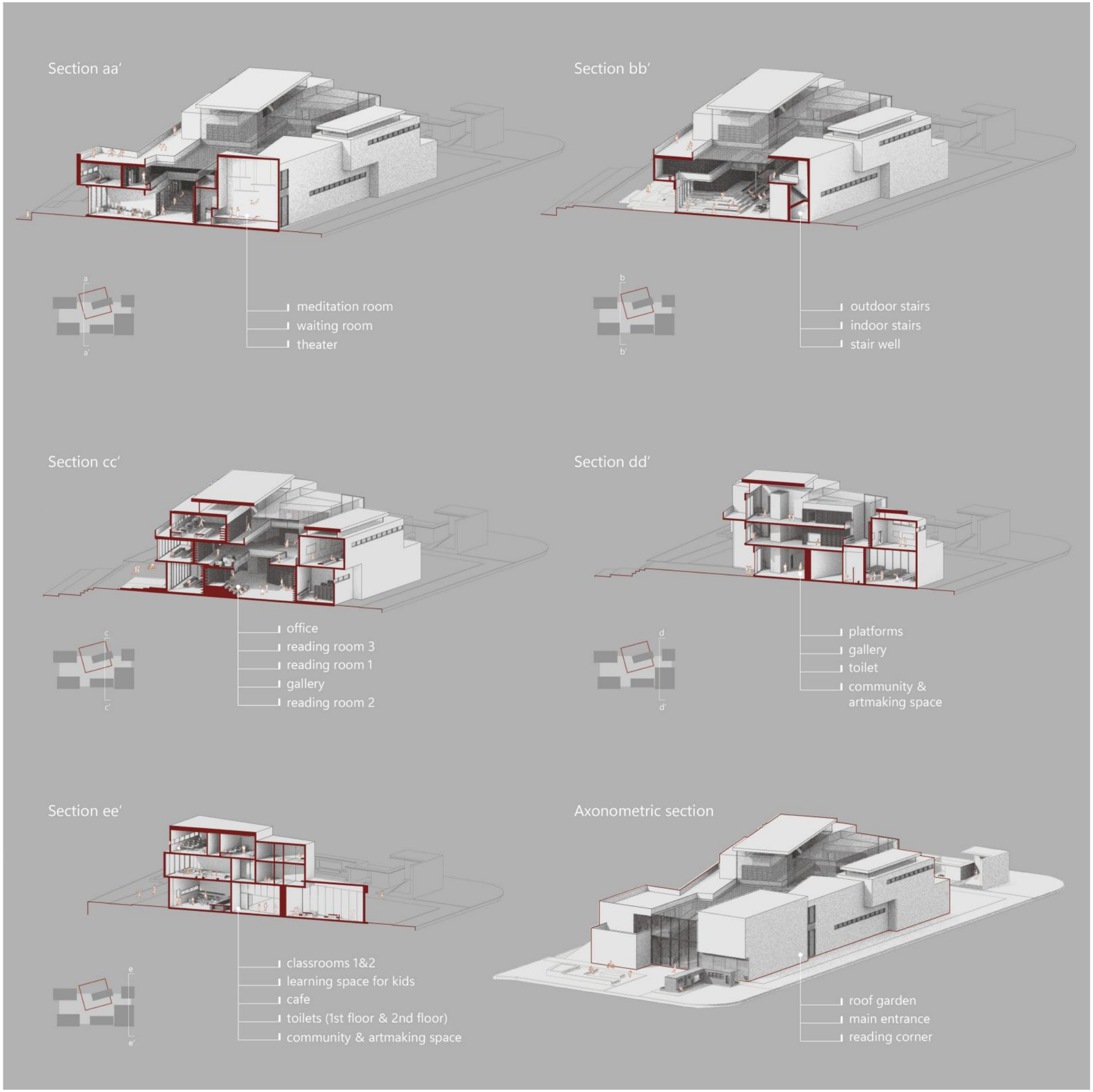
- Big-scale space: public lobby is needed to provide to different kinds of groups to communicate and interacte, also for lecture and reading.

1. Stone element, 30mm
2. Sheating board, 12mm
3. Separating membrane (diffusion-permeable)
4. Ventilation cavity, 50mm
5. Thermal insulation, 120mm
6. Primary steel H beam with 5mm fireproof coating, 400mm×400mm
7. Secondary steel H beam with 5mm fireproof coating, 360mm×360mm
8. Insulating glazing
9. Suspended ceiling with 15mm sound insulation panel, 60mm
10. Plywooden flooring, 12mm
11. Mineral-fibre impact sound insulation, 48mm
12. Self-leveling screed, 25mm
13. Reinforced concrete slab on metal sheeting, 120mm
14. Fine sand, 15mm
15. Fine gravel, 15mm
16. Coarse gravel, 30mm
17. Soil
18. Drainage pipe
19. Drainage channel
20. Hardcore



The building serves as a learning and leisure center with an overall span of varying heights. Due to its large size, it utilises composite construction, steel framed structural connections and different types of facade designs.

Whilst the steel frame structure is better than the concrete structure in terms of deadweight, speed of construction and toughness, the corrosion and fire resistance is extremely poor. This is the reason why I added two layers of fire-resistant panels to the steel frame in the design. Also, the choice of material for the facade was also heavily influenced by the construction, which is why stone slabs, which are clean in colour but easy to work with, were chosen for the facade, giving the building a pure feeling.

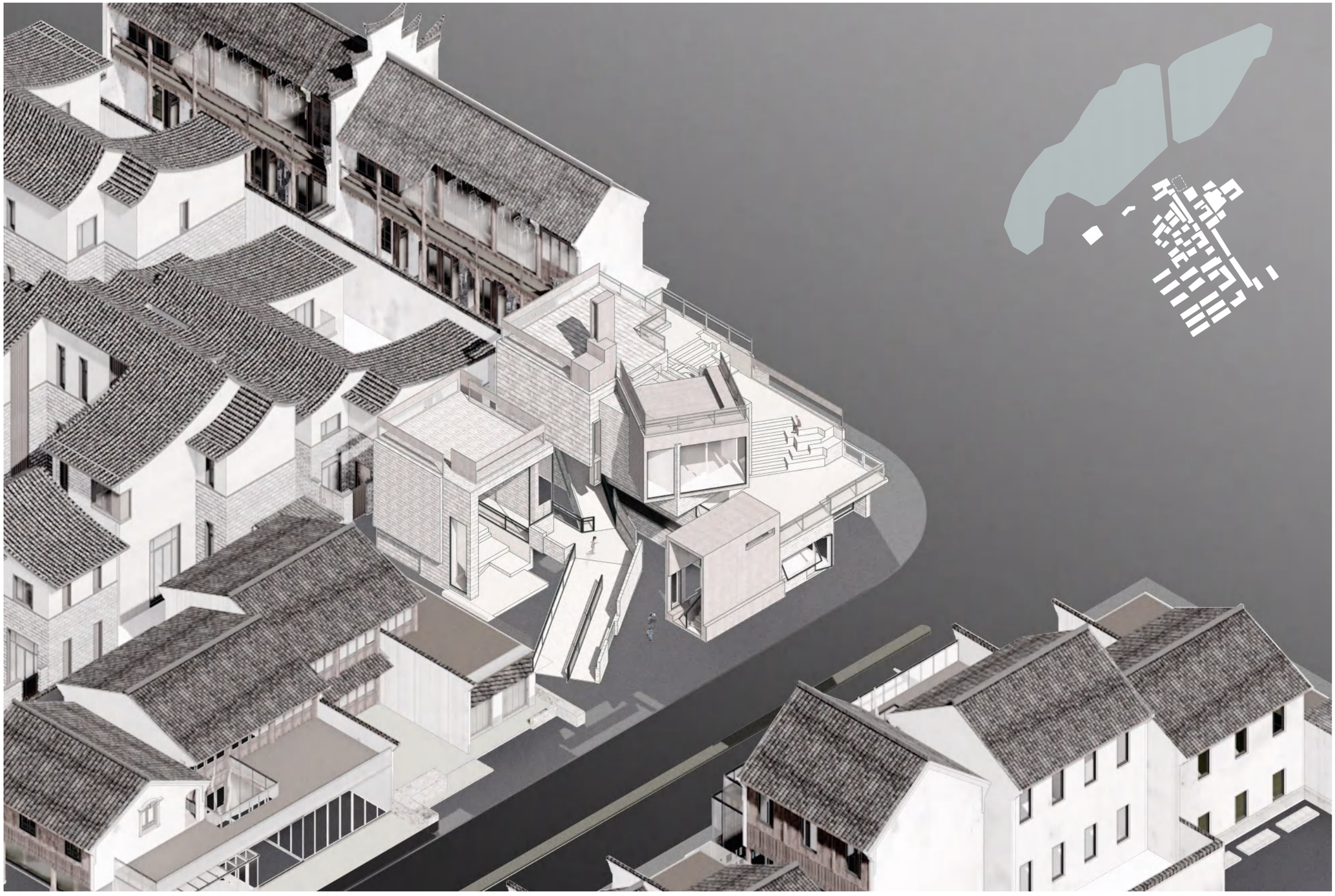


03 Interaction

A community center with children clubs

2022.3-2022.5 | Individual work | Comprehensive Design Project

"If a city in the old Eastern country loses its artistic charm in architecture, it is heartbreaking in terms of cultural expression and observation."



A community center is a place where people gather outside public areas, private homes, and interact with others. This building is designed as a small public building for non specific user groups. Ask how the building/urban space can bring people together, especially under the restrictions of COVID-19?

Modular architectural design refers to the repeated application of a certain building's characteristics as a unit in the design. Chinese ancient architecture is now integrated with modern architecture through the diverse innovation and utilization of eaves, materials, etc., in order to preserve history and culture.

Context and History

Cicheng is a small ancient town with approximately 17,000 inhabitants, located about 10km northwest of Ningbo city center. The site is chosen for its relatively compact and simple urbanfabric. In addition, the rich history and cultural heritageof the town could be a source of inspiration for the design project.

Street facade

The facades of the surrounding buildings are mainly well-preserved **masonry facades** of old buildings and **concrete-glass facades** of modern new buildings. This is a typical example of designing facades of Chinese ancient building.

SWOT

+ Good **greenery**, high diversity of vegetation
+ Convenient **transport** and high concentration of **people**
- Highly commercial, **little historical preservation**

Building typology

The areas closer to the site tend to be **commercial areas** surrounded by **older residential neighbourhoods**.

Population

Adults are mainly distrubuted in **shops** along the streets, **the elderly** are more distrubuted in **residential areas**, and **children** are mainly found in various **educational establishments**.

Greenery

There is **adequate landscaping** around the site, mainly **shrubs and tall trees**. Lawns dominate close to the lake.

Circulation

The roads around the site are designed to provide **access for both people and cars**, so pay attention to the **location** and **direction** of doorways.

1048

Confucius Temple is located in the centre of Cicheng, and has been built and expanded to form the present scale, with the architectural pattern laid out according to the three axes of the middle, east and west.

1522

The A Di Shijia sits in the north and faces south, with a single eaves in the front hall, the front and rear eaves are paved with strips of stone, the upper eaves at the south end imitate the hermitage style, and the north end is the hard hill style.

1610

Feng Yue painted stage door is the main door of Feng Yue's former residence, the main trunk of the building is painted with various colours of lively patterns, is the best preserved one of the Ming Dynasty doorway paintings and carvings.

1771

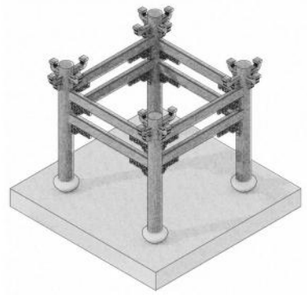
Shigu Pavilion is a hexagonal, heavy-eaved and pointed roofed pavilion with 12 stone pillars supporting the pavilion, which has a unique and exquisite structure, and Shigu Pavilion mirrors the Cihu Lake excavated in the Song Dynasty.

Modular design of ancient Chinese buildings

Modular building, a form of construction consisting of modular builds. All modular components should be both a structural unit and a spatial unit. Structural unit means that each module has its own structure and can exist independently without relying on external support (equivalent to a square box itself); spatial unit means that according to different functional requirements, the module is divided into different spaces and assembled with different facilities according to the requirements (equivalent to the configuration of the box with the necessary facilities for life).

01
Column
Ancient Chinese buildings were mostly made of wood, where trees were cut down and boards were inserted as pillars.

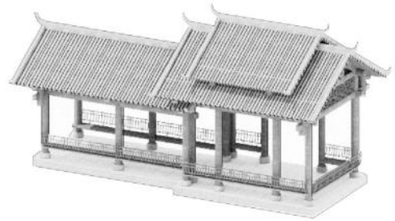
02
Gate
The two pillars are connected together and the openwork door is the pagoda gate.



03
Foundation
Four columns and beams form the foundation that supports the roof.

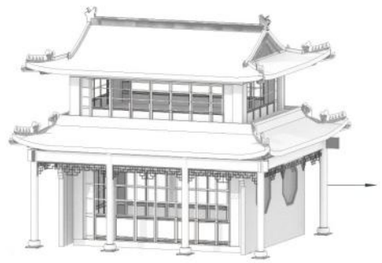
04
Pavilion
Two pagodas joined together plus a roof is a pavilion, and pavilions have different roofs.

05
Theatre
Wall up three sides of the pavilion and it becomes a theatre.

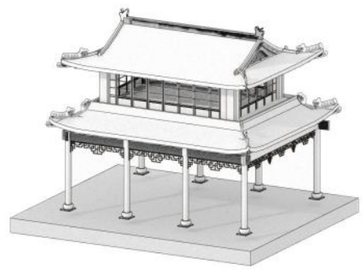


06
Promenade
A long platform with a roof was added next to the pavilion and turned into a promenade.

07
House
When walls were added between the pillars and doors and windows were put in, it became a house.

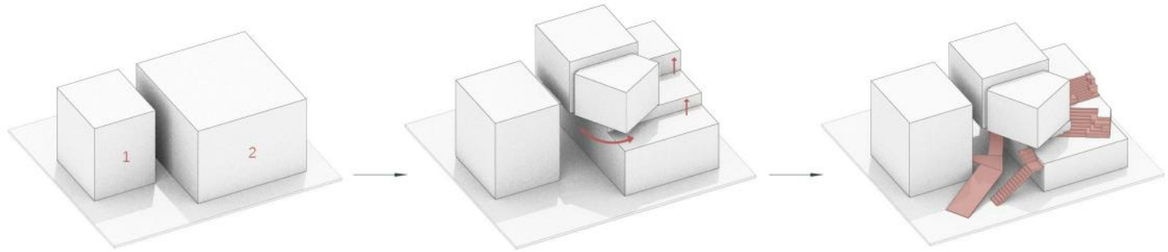


08
Building
A house on top of a house is a building.



09
Tower
The house is built on a high platform on the top is the tower.

Generative process of design



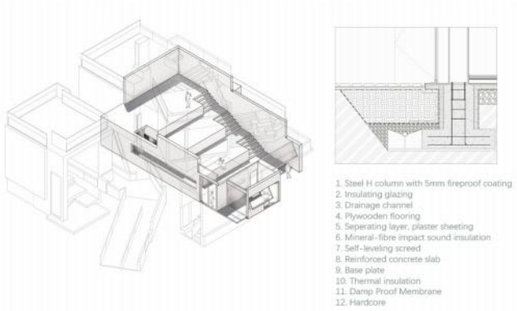
01
Divide two parts
Two zones are distinguished, with the main section (2) providing indoor space for interaction and the secondary section (1) providing semi-outdoor space for children.

02
Detail spaces and programs
Use modular knowledge to refine different spaces and use diagonal orientation to produce different layouts.

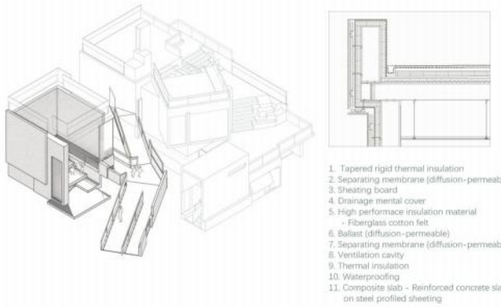
03
Add stairs
Adding steps as the main repeating element follows the direction of the space for emphasis and some interest.

Application of modularization in the design

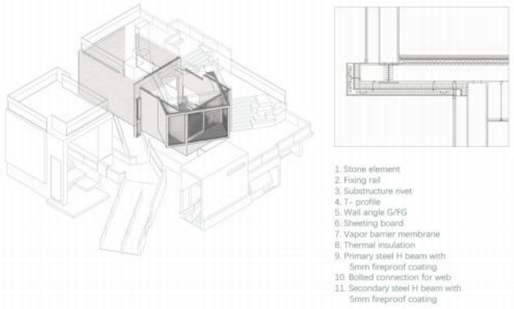
Contrary to the repetition of pitched roofs and timber materials, this building mainly uses steps as the main repetitive element to simulate the process of modularisation of ancient Chinese buildings, with the use of local material, stone, to achieve a combination of modernity and antiquity.



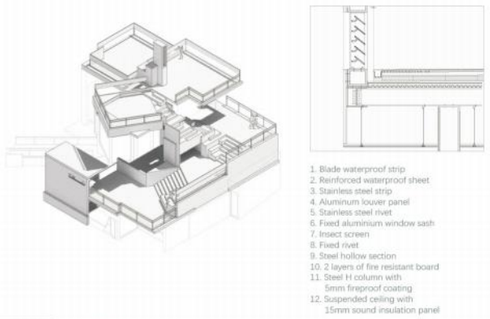
Community hall
As the main space of the building, this hall is mainly used as the main social space and diverts people into smaller spaces. The main terrace provides ample recreational areas for local residents.



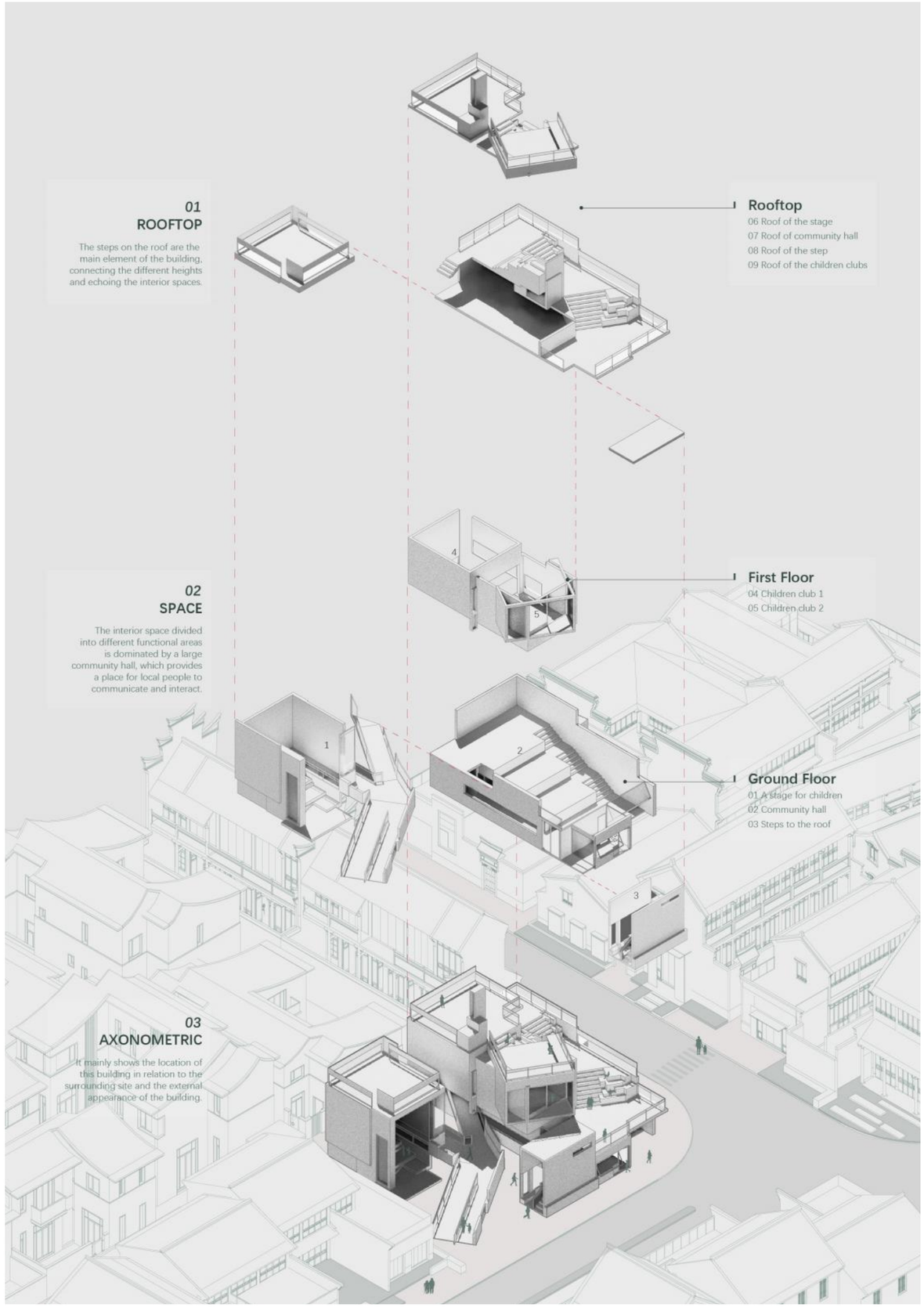
Children stage
This space gives children plenty of freedom to create and display, and the bridge connecting the stage to the main space attracts the eye and guides the crowd.

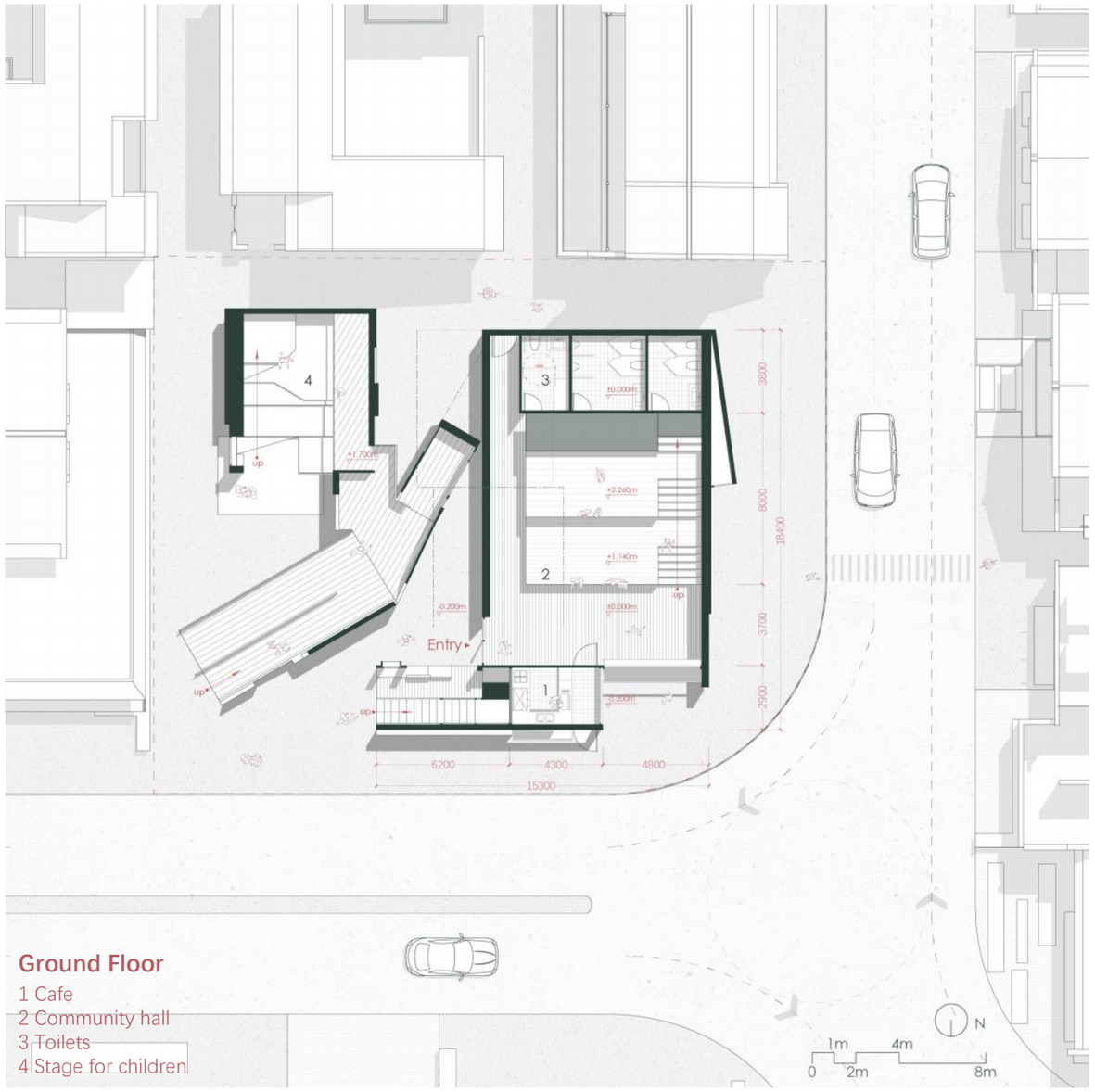


Children clubs
This space provides children with different spaces for quiet and lively activities respectively, as well as being higher up, offering different sightlines and more privacy.



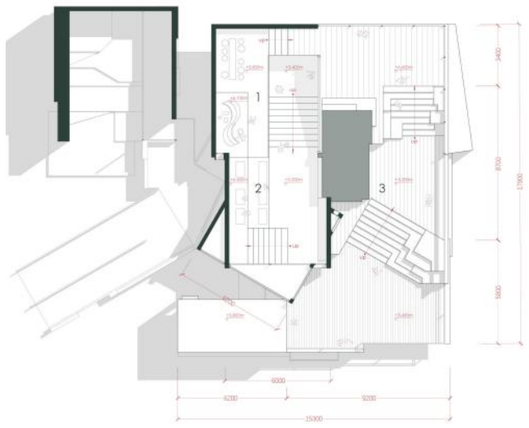
Roof
Cascading steps are used as the main element, not only in the interior space but also on the roof, providing attraction and different movement lines at different heights.





Ground Floor

1 Cafe
2 Community hall
3 Toilets
4 Stage for children



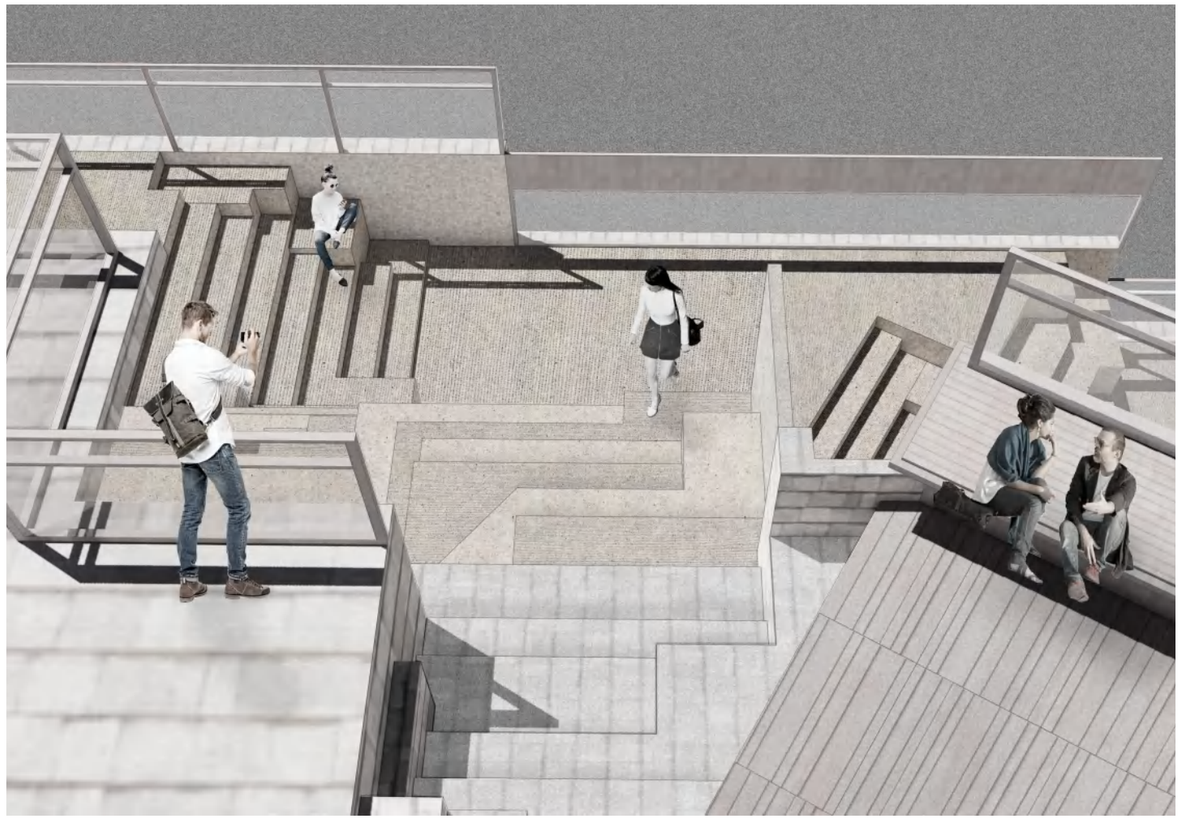
First Floor

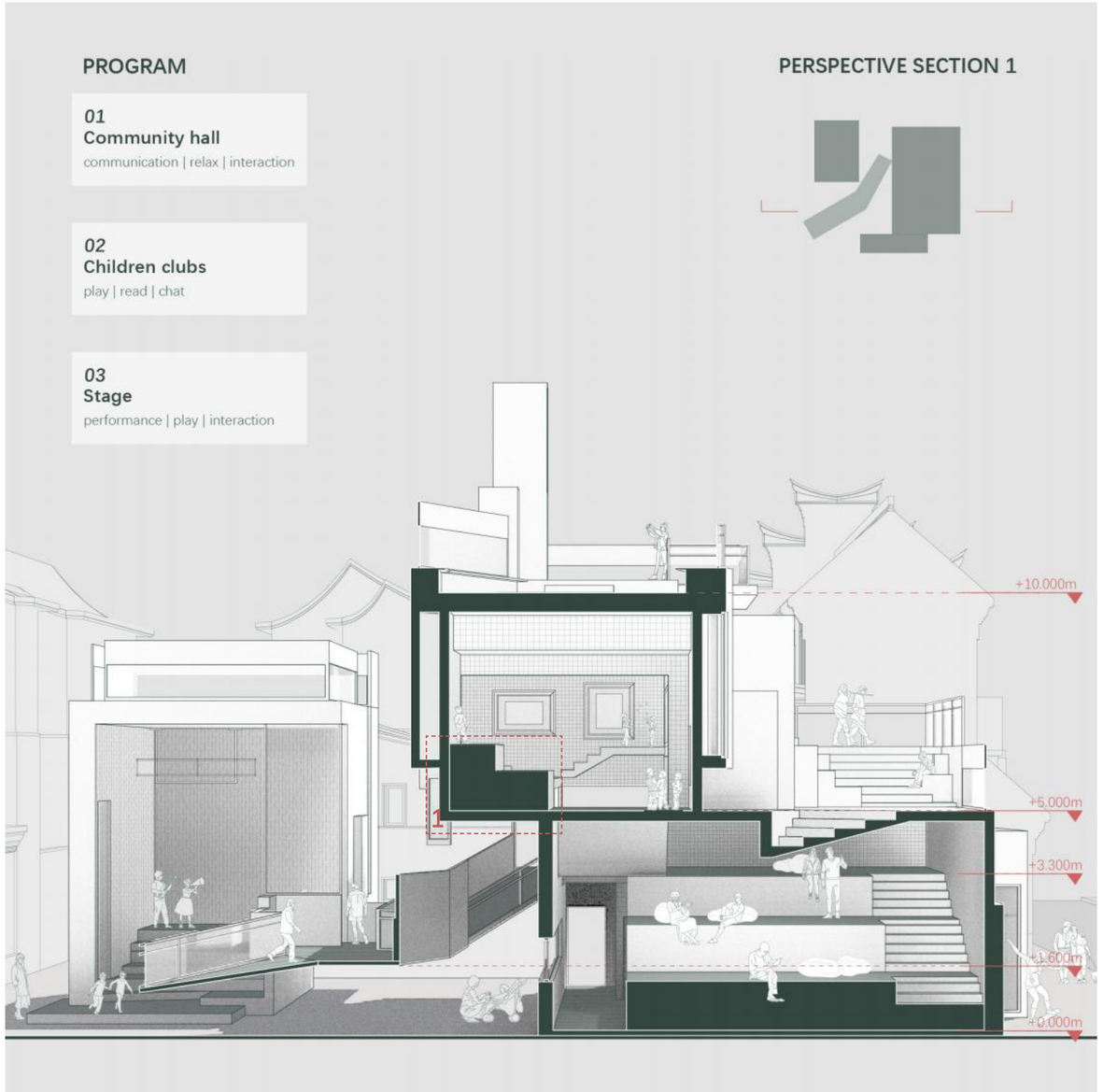
1 Children club 1
2 Children club 2
3 Outside platform

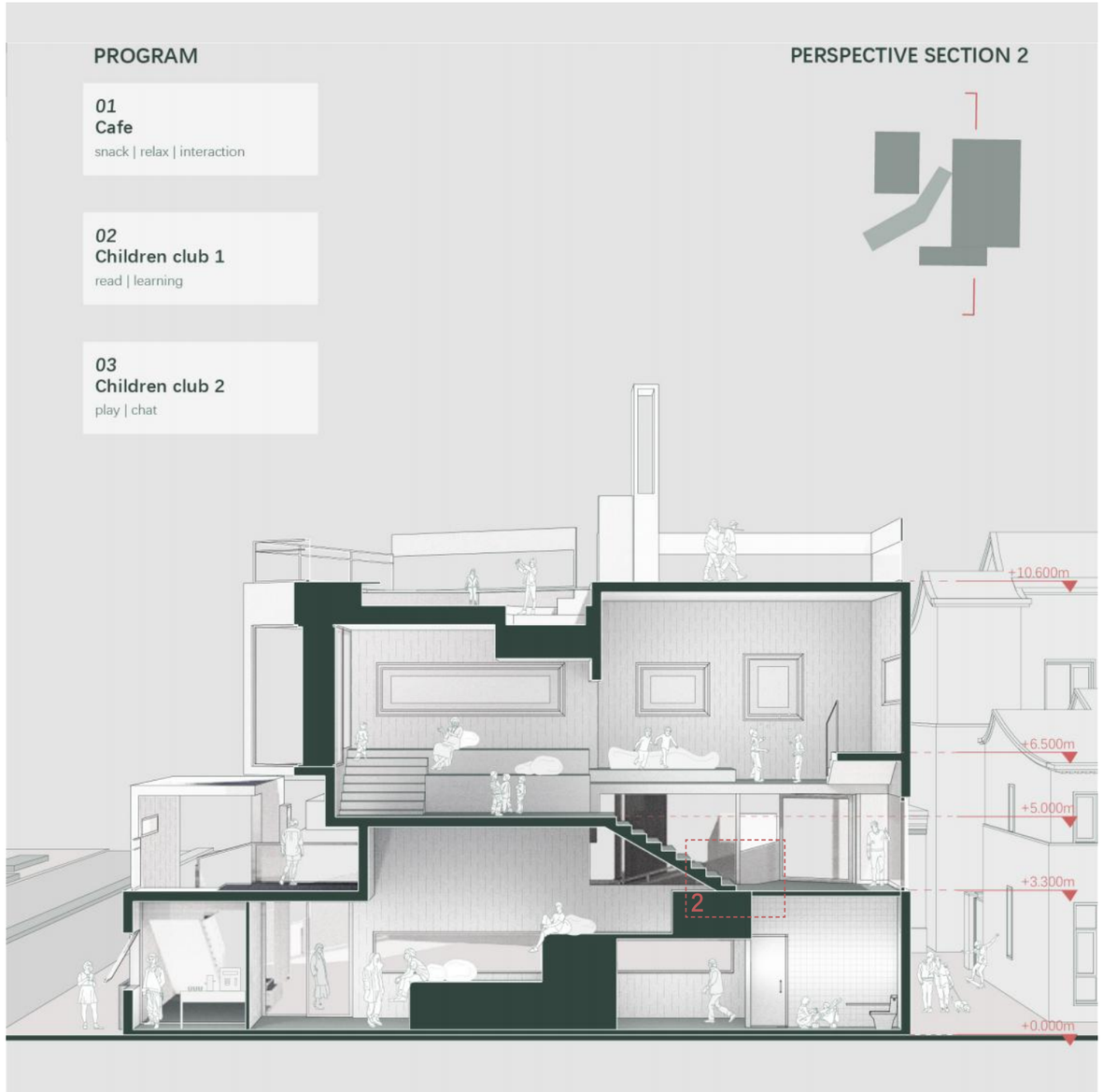
As the main element of the community center, stairs play an important role in connecting different spaces.

01 it connects indoor and outdoor spaces with different heights, and provides children with a climbing play space.

02 it provides people with a multifunctional area to read, communicate and have fun.



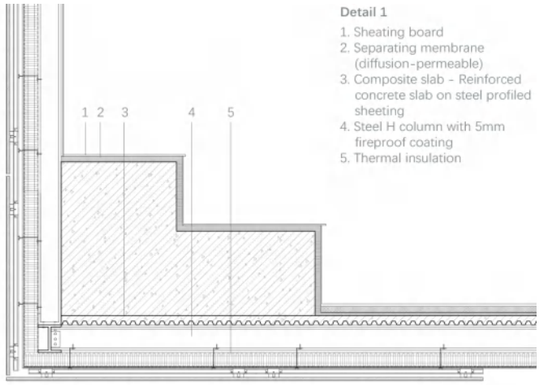


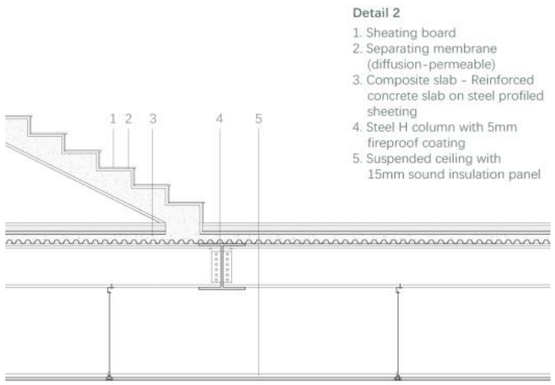


Interaction

Interaction in different groups of people is not only communication, but also other feelings. People outside can see inside acitivities from the big opening and participate in them. The windows in community hall are designed for outside people to see the inside activities in specific view. People can use the large spaces to do everything they want, such as playing musical instruments.

At this time, the building is the background of the stage where he performs. This is a kind of interaction between building and people. People make full use of the steps for diverse activities, whether with others or by themselves. People at the first floor of the coffee shop can see what the people in the community hall are doing through the glass.





04 Saving schindler´s ark

A renovation project for integrated functional areas on an industrial site

2023.11-2024.1 | Individual work | Integrated Functional Area
"You can see as far into the past as you can into the future. Don't forget where and how you started."

The context of the project is the design for the renovation of the Schindler's Ark site, where 1,200 Jews from the Schindler's List were protected in a textile factory. The aim of the project is to create a monumental site for the survivors, which on the one hand will preserve the legacy of Schindler's Ark and on the other hand create a modern museum dedicated to this period of history for the visitors or the surrounding inhabitants. At the same time, the south side of the house will be redeveloped into sustainable community housing to meet the needs of the area.

Based on the original factory structure, the project is modularised to present the different activities in separate areas. Based on the restoration of the original factory building, the addition of a system of corridors not only provides visitors with different perspectives of the industrial site, but also connects the north and south sides of the site. The mix of glass, masonry and steel frames maintains the original industrial atmosphere.

O W N E R

ancestor

Walter Low-Beer
He held up the Nazi invasion of this part of Czechoslovakia, a Jew defending a broken Czechoslovakia.

Daniel Low-Beer
"The co-design of the families of Schindler Jews, Czech survivors and school children from five countries is crucial."

L O C A L S

The elder
main local population, living in surrounding Villages

Adults
aggregated and usually go to work in the towns.

V I S I T O R S

Young people
It is mainly young adults who hold activities on holidays. They come here mainly by car or train.

19 39 09 German army crushes Polish army in two weeks, WWII begins.

19 40 04 Germany attacked Western European countries - France and the neutral Low Countries.

19 40 09 Germany, Italy and Japan sign the Triple Alliance Treaty.

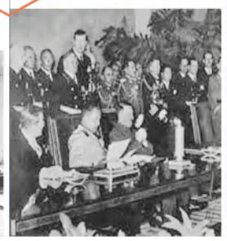
19 41 06 Nazi Germany and its Axis partners invade the Soviet Union.

19 42 11 Soviet forces counterattacked. U.S. and British troops landed at the base of Algerian and Moroccan beaches in French North Africa.

19 43 11 Soviet troops liberate Kiev.

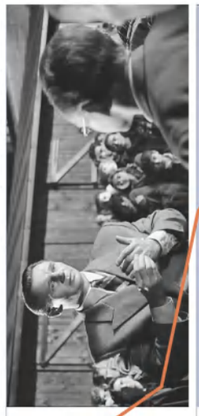
19 44 06 The British and American armies succeeded in opening a "second front" against Germany, and the Soviets launched a large-scale offensive in eastern Belarus.

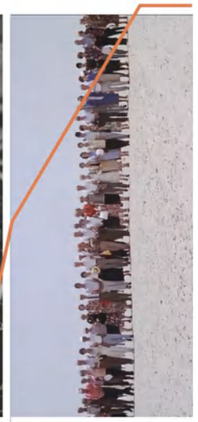
19 45 World War II ends.



HISTORY OF THE ENTIRE PHASE

PEOPLE AND STORIES





19 39 09 All Jews were ordered to register their households and move to the big cities.

19 39 11 Schindler bought a Jewish-owned enamelware manufacturing plant in November 1939 and established his own factory, Emalia.

19 43 03 During the Yakuza cleansing that took place in March 1943, Schindler kept his Jewish employees in relative safety by having them stay overnight at the factory.

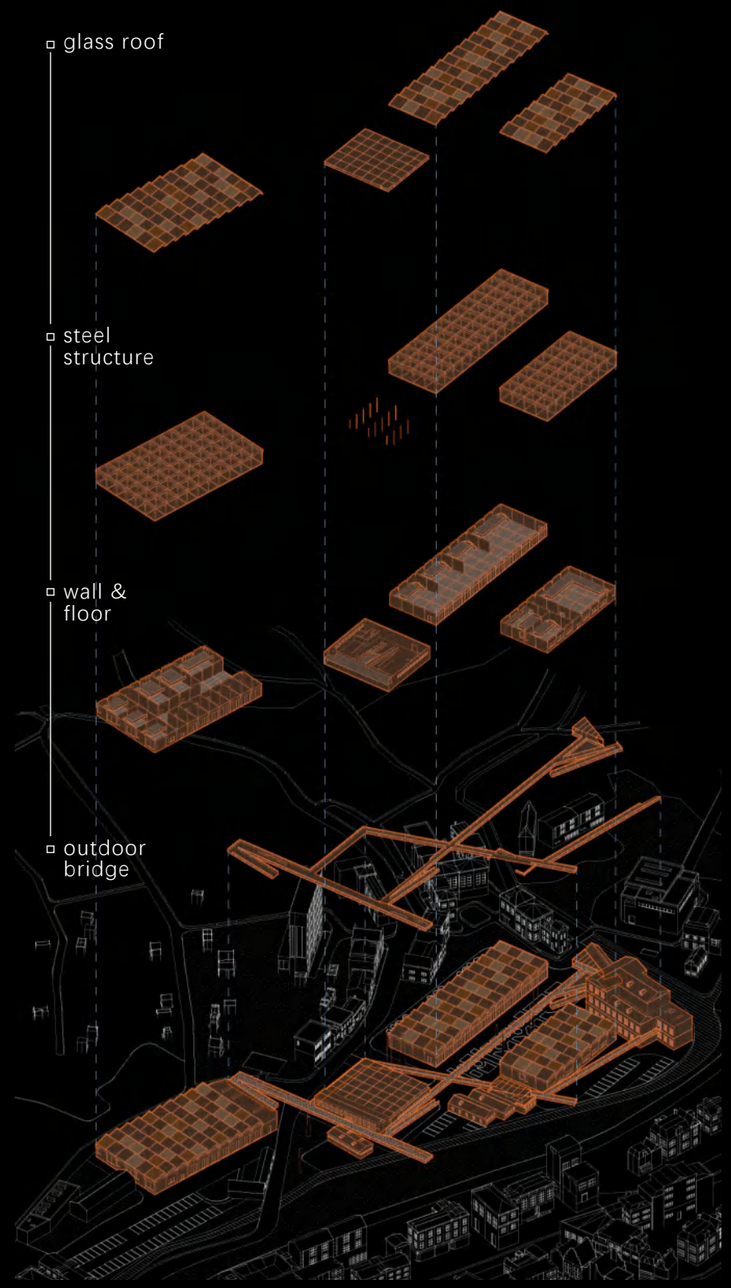
19 44 10 In October 1944, Schindler received authorization to move his factory to Brienlitz in Moravia . One of his assistants drew up several versions of a list of more than 1,200 workers, which became known as "Schindler's list".

19 49 Schindler and his wife emigrated to Argentina and the Jews were liberated.

N O W The survivors of the original visit Schindler's grave to pay tribute to Schindler as a sign of respect and remembrance.

Site analysis and history research

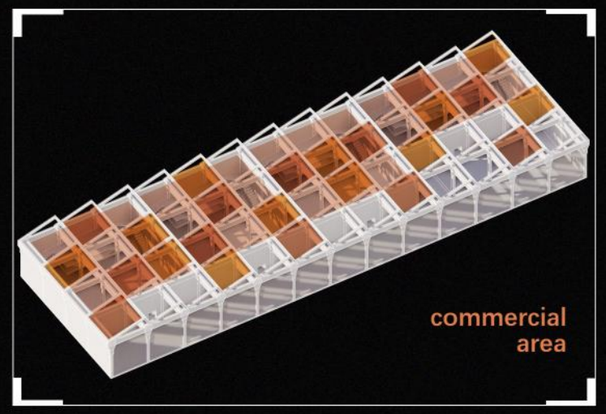
Geographically, the village is situated in a slightly undulating landscape between the hills of the Svitava Upland and the Žár Hills. The surrounding landscape is characterised by agricultural land, forests and small ponds. The Svitava River and the Bělský Brook flow through the village.

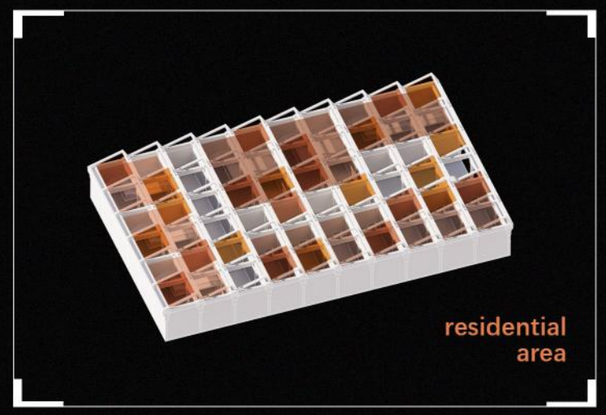


North & South

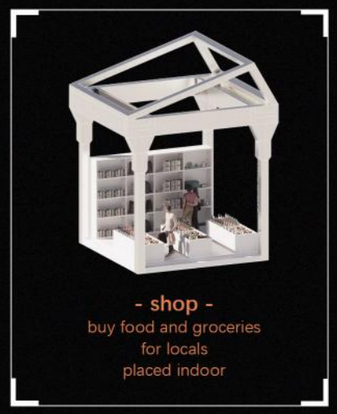
The north part of the site is the main concentration of visitors and contains a variety of functional areas. The south part of the site is mainly for local people, which is connected to the main site by a skybridge.

The structure of the main buildings is steel structure that retains the character of the factory site. The use of glass makes the overall appearance lighter with the skybridges.



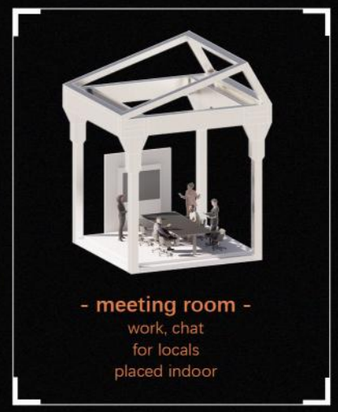


- cafe -
relax, chat
for locals and tourists
placed indoor and outdoor



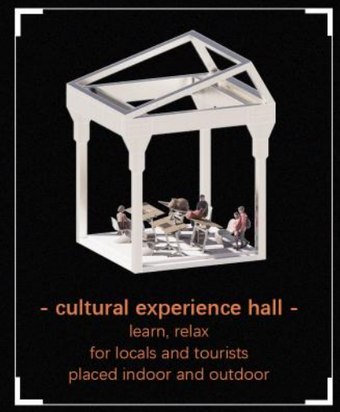
- shop -
buy food and groceries
for locals
placed indoor

- exhibition -
artworks about the history of the factory
for locals and tourists
placed indoor

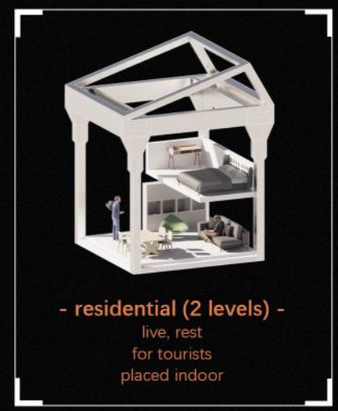


- meeting room -
work, chat
for locals
placed indoor

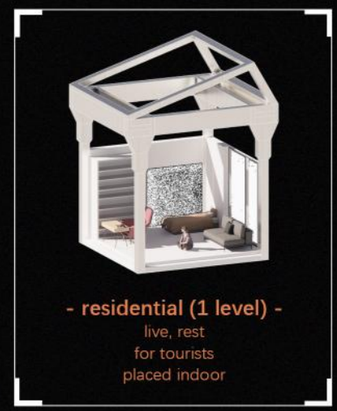
- office -
work, communicate
for locals
placed indoor



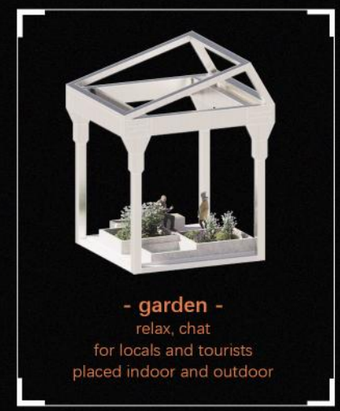
- cultural experience hall -
learn, relax
for locals and tourists
placed indoor and outdoor



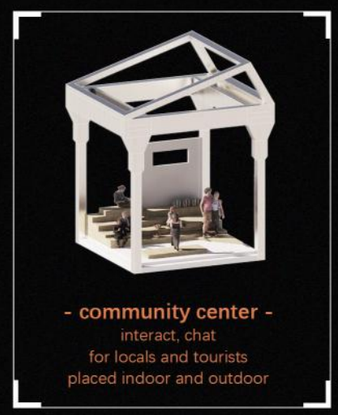
- residential (2 levels) -
live, rest
for tourists
placed indoor



- residential (1 level) -
live, rest
for tourists
placed indoor

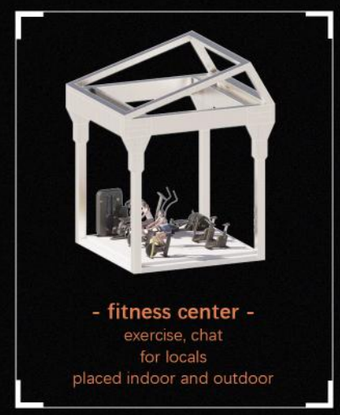


- garden -
relax, chat
for locals and tourists
placed indoor and outdoor

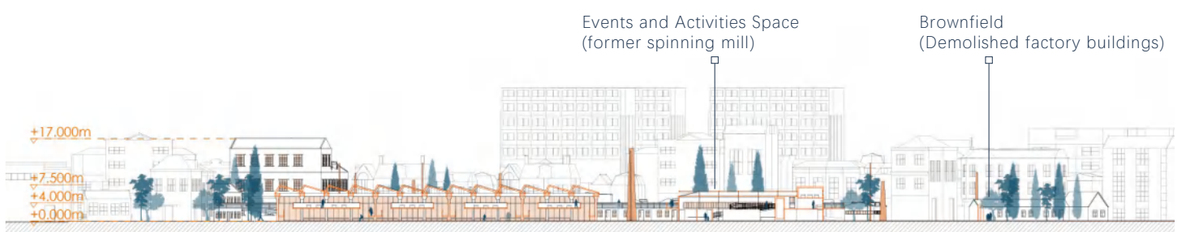


- community center -
interact, chat
for locals and tourists
placed indoor and outdoor

- museum -
visit, appreciate the history
for locals and tourists
placed indoor



- fitness center -
exercise, chat
for locals
placed indoor and outdoor



Saving schindler's ark

- Converting old factory buildings into an integrated residential, commercial and cultural complex attracts crowds. A system of connecting corridors provides an alternative transport system for visitors, separate from the daily living areas of the local population.

- The modular construction method is applied to the main functional areas - residential, commercial and office. The modular form gives the north and south a unified tone.

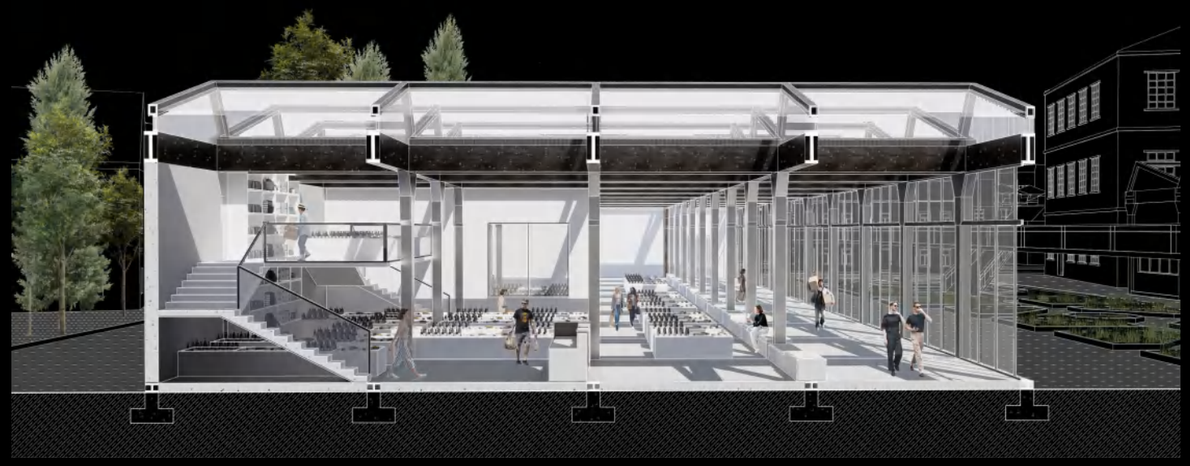
View from a window

From the window looking into the central courtyard, you can not only see the connecting corridors on the upper floor and the landscape on the ground floor, but you can also interact with the people in the commercial area across the courtyard.

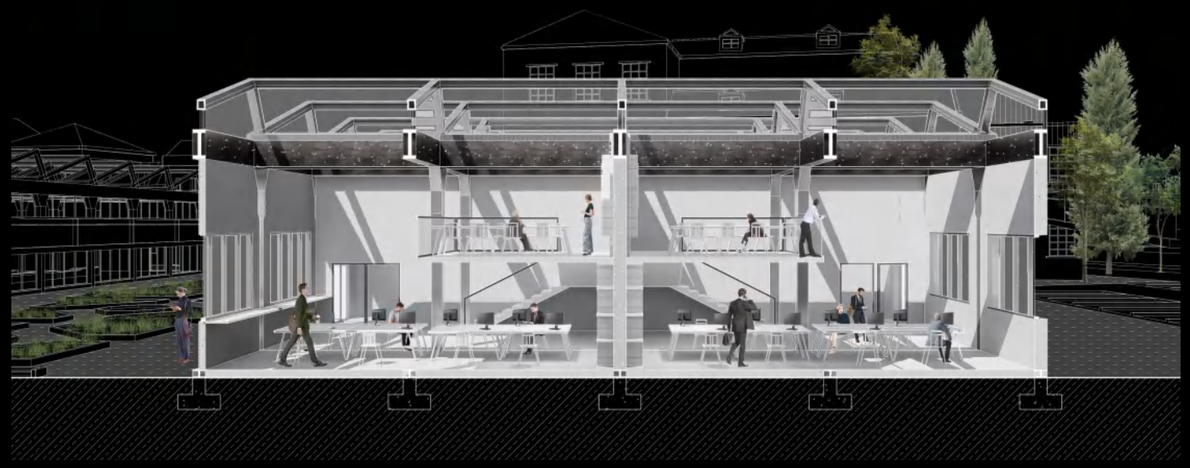
The ramp at reception center

A large ramp at the reception center connects the first and upper floors, echoing the external corridor. The glass roof echoes the glass roof of the main structure. The ramp at the centre is not enclosed, making the overall space appear more open.

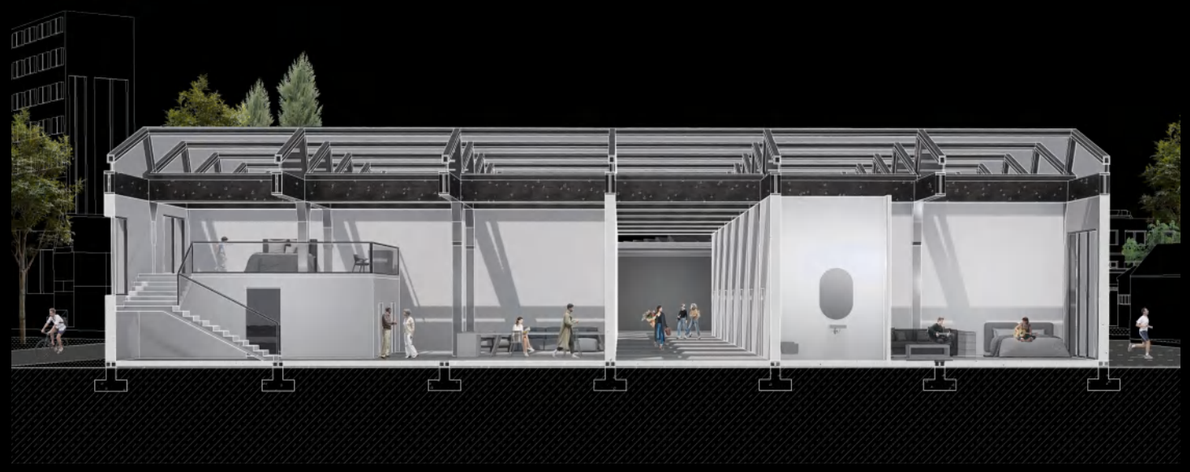
commercial area



working area



residential area



05 Crossing street · Introducing garden

A masterplan integrating with the both historic and modern context

2023.9-2023.12 | Group work (Group leader, design) | Masterplan

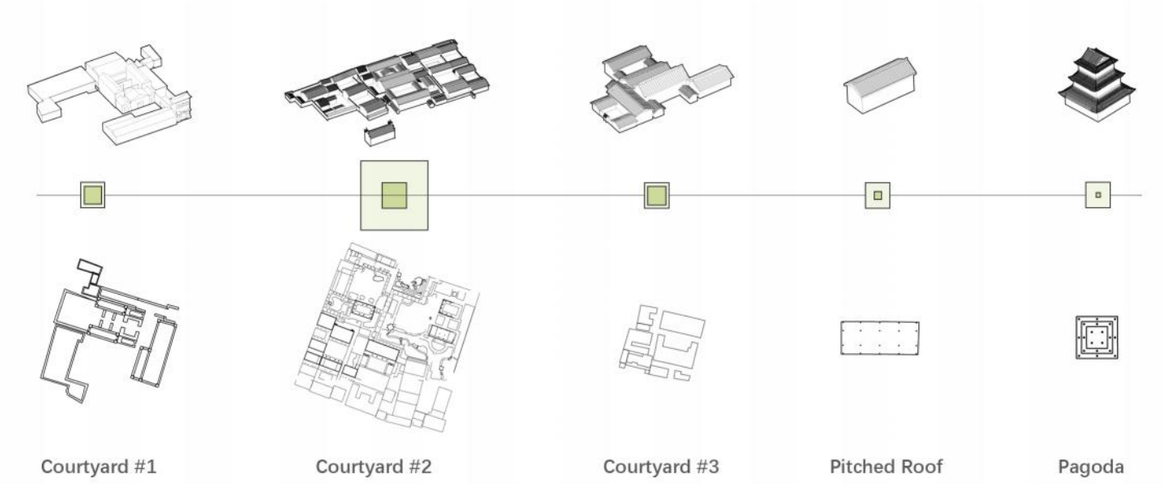
"To create a city is to think clearly and logically about spatial structures that convey real-world concepts, such as nature, history, tradition and society."

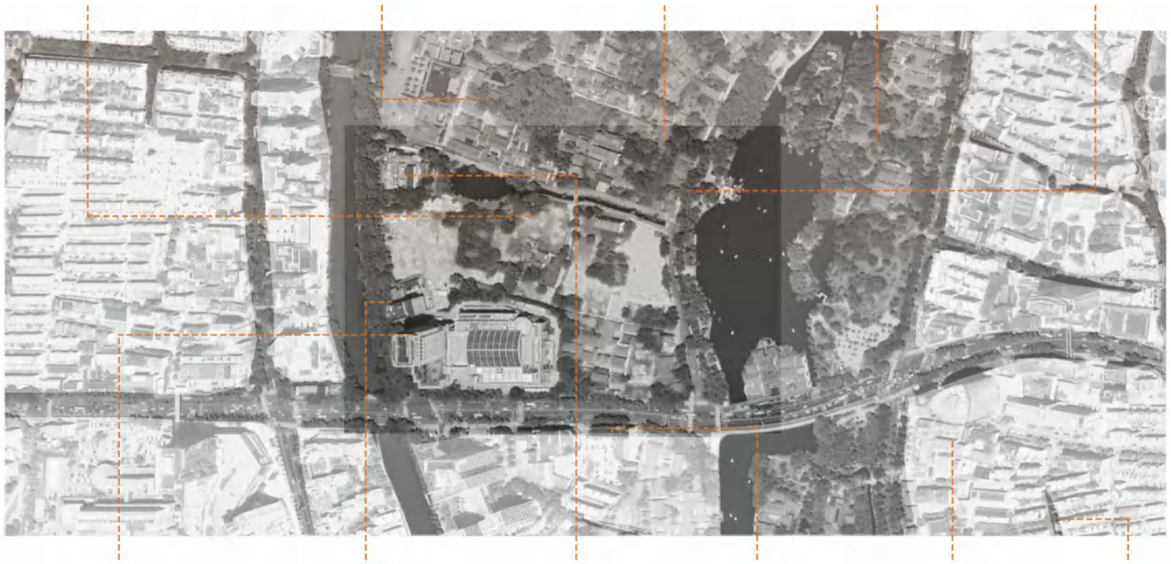
The project is located in the center of Ningbo, with the historical Tianyi Pavilion and Moon Lake to the north and east, and more modern residential and commercial areas to the south and west. The site is relatively barren and devoid of human activity. Also, the ancient and modern areas around the site create a sense of separation. Therefore, this project needs to solve the above problems.

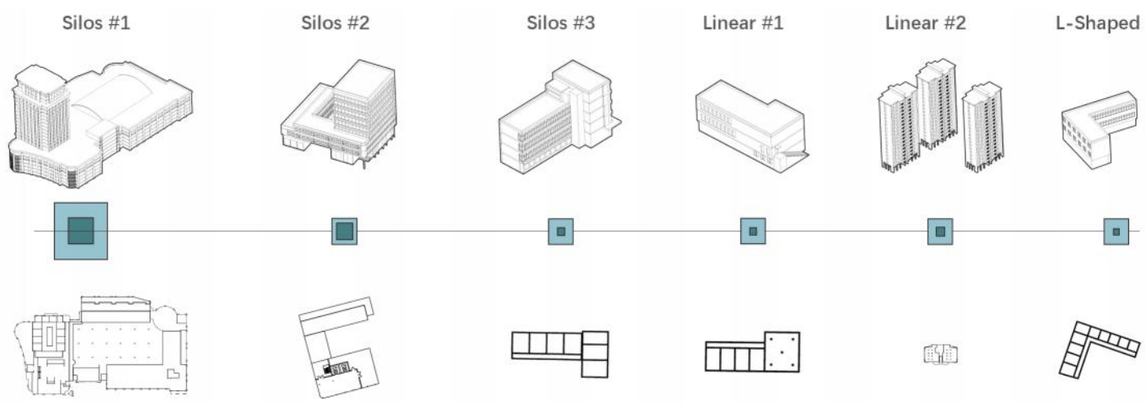
The name of the project is "Crossing Street & Bringing Garden", which aims to realize the connection between the ancient and the modern through the introduction of garden and the re-planning of circulation. The design first divides the site into x-axis and y-axis. Then it grades the "street" strategy and "garden" strategy into different hierarchies, and design them from the x-axis and y-axis direction respectively. Finally, it combines the design of streets and gardens into a whole in order to realize the transition between ancient and modern spaces.

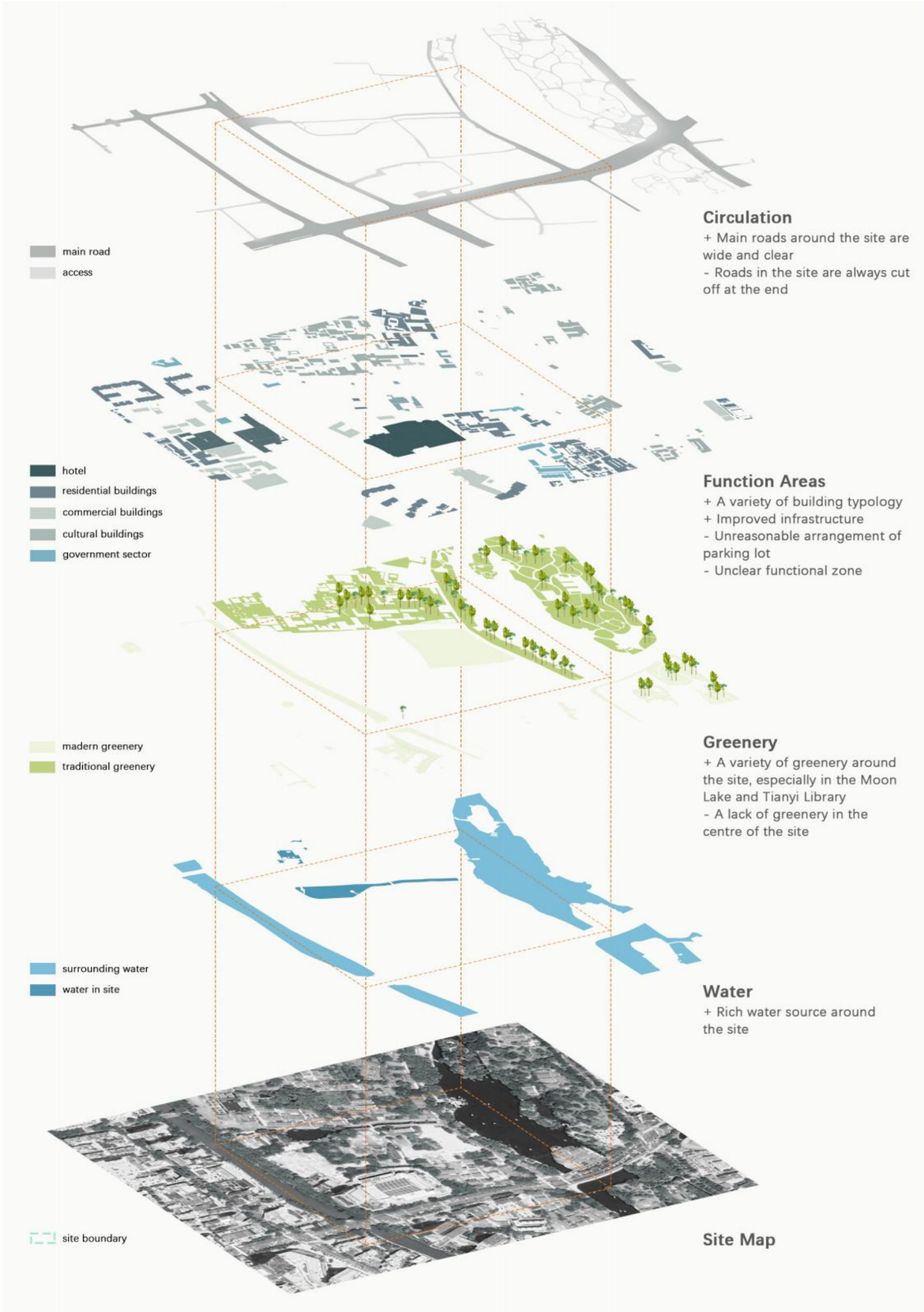
Site analysis and Urban fabrics

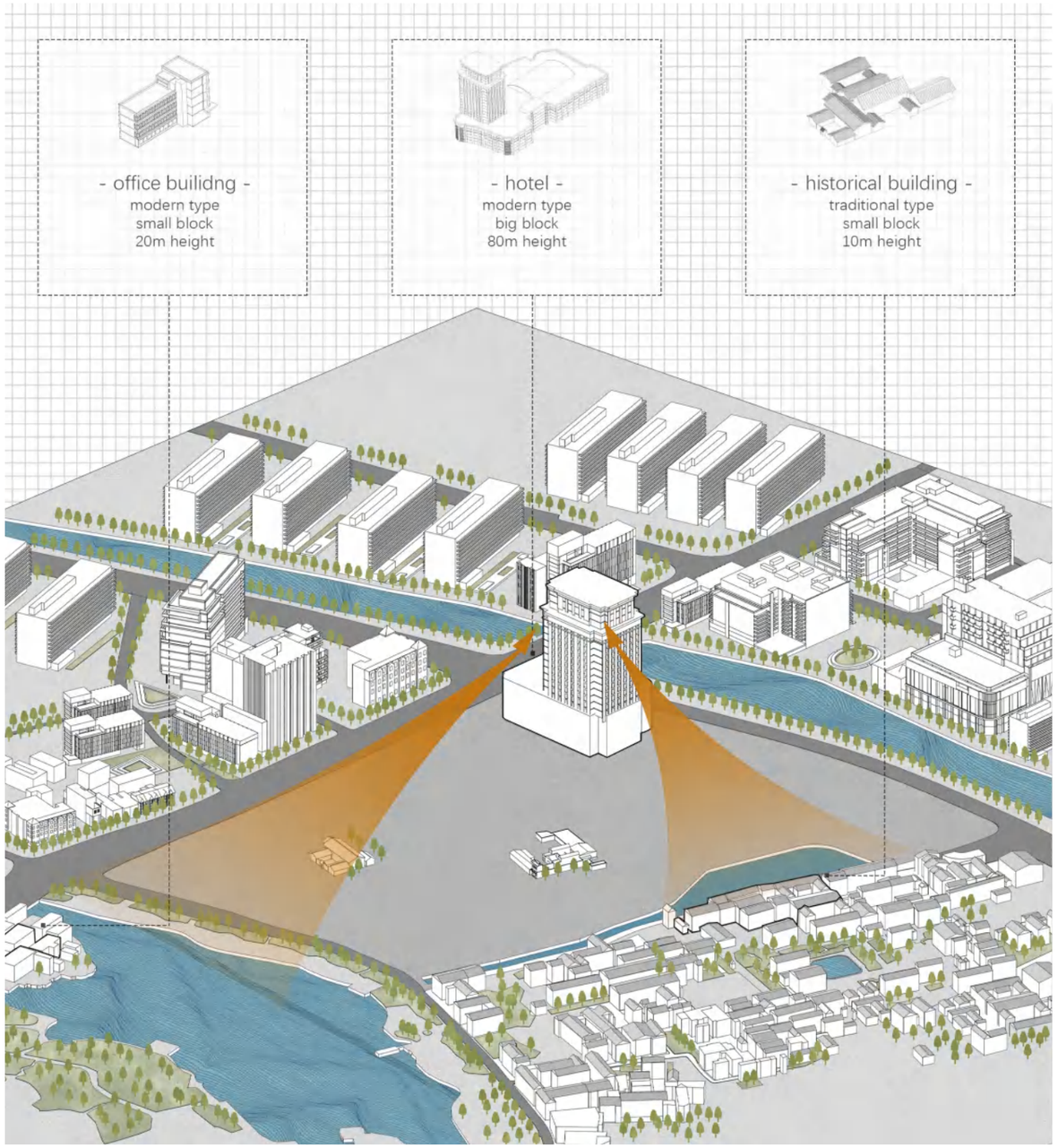
The site is located in the south of Tianyi Library, one of the oldest libraries in the world, Ningbo. There is a number of historic buildings with vacant areas resulting from demolishing. The site shows a rich pattern of waterways, greenery, heritage and urban fabric, and modern towers in the heart of the city.









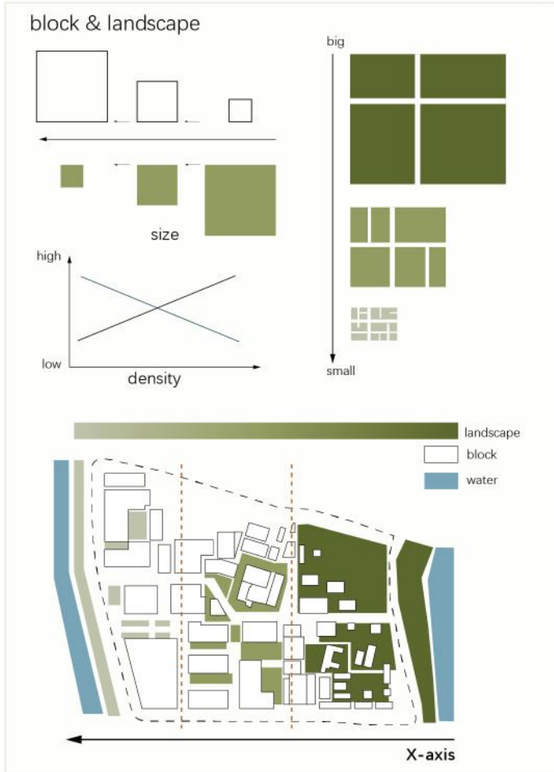


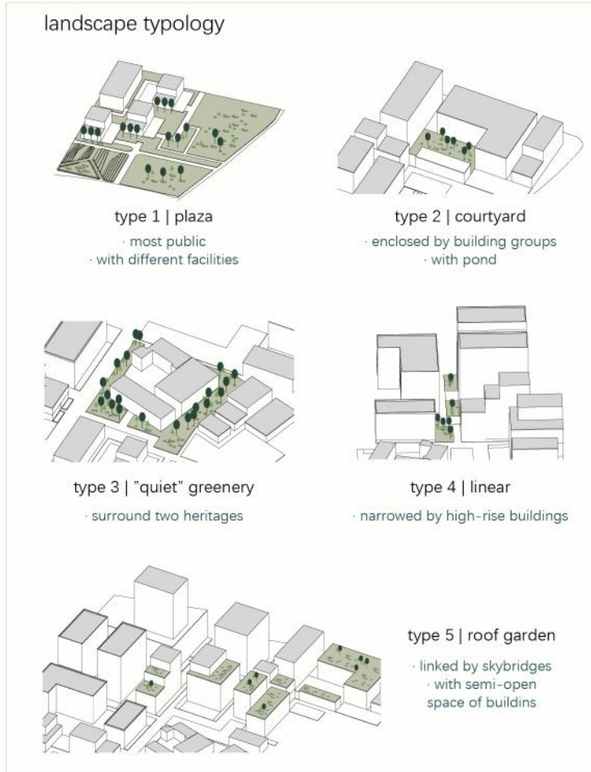
Generative process of design

Due to the complexity and diversity of the functional fabric around the site, the main purpose of the design of this site is "transition" in order to realise the tandem of different functional areas. The site is divided into two directions, one is X-axis (east-west) and the other one is Y-axis (north-south).

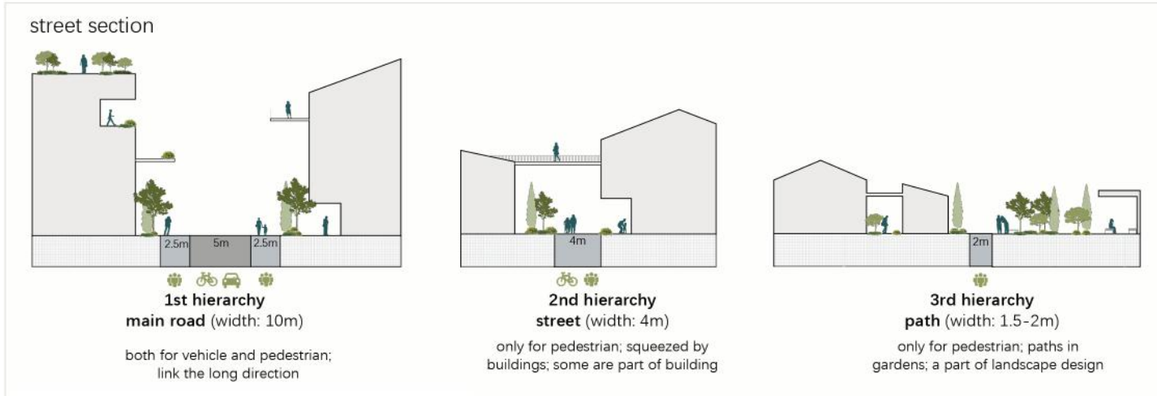
In the direction of X-axis, the introduction of the rich ecological resources of the Moon Lake in the east is realised through the landscape design. In the Y-axis, the historical area in the north and the modern area in the south are connected through the design of different hierarchies of circulation. The overall building blocks and layout are combined in both directions to achieve an natural transition, so that the original buildings on the site do not stand out too much.

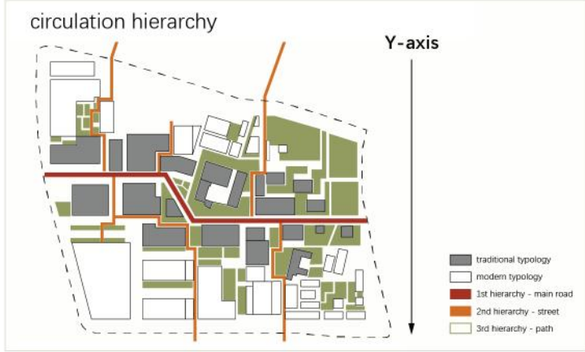
Garden strategy - Landscape design

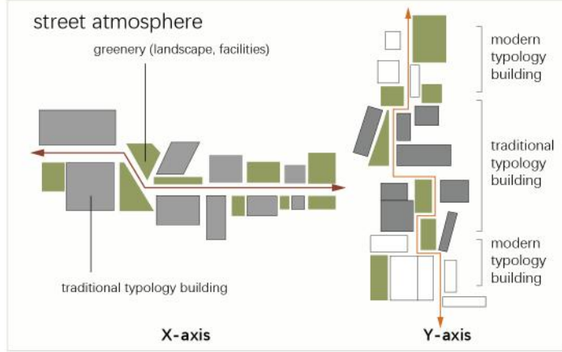


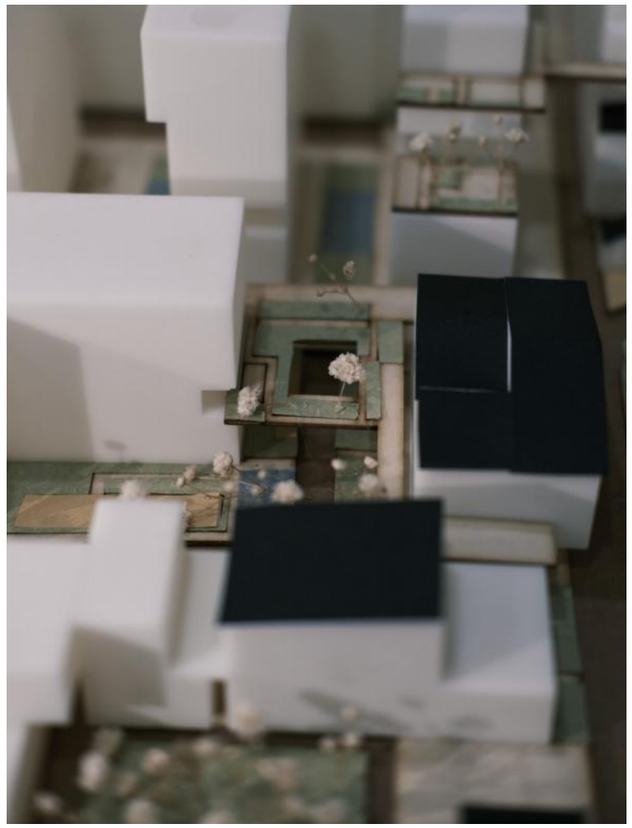


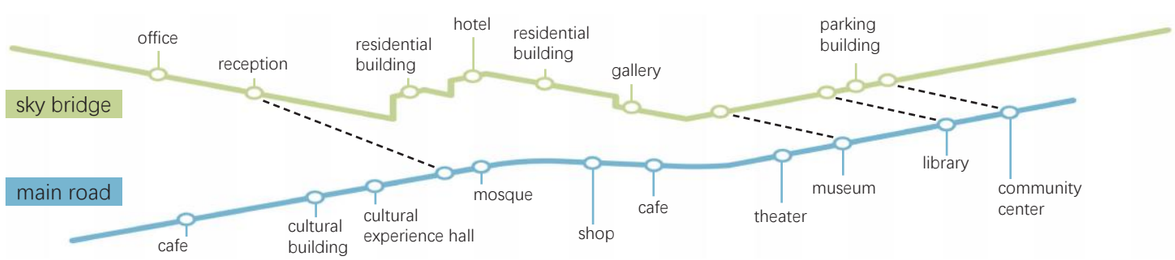
Street strategy - circulation & building typology design









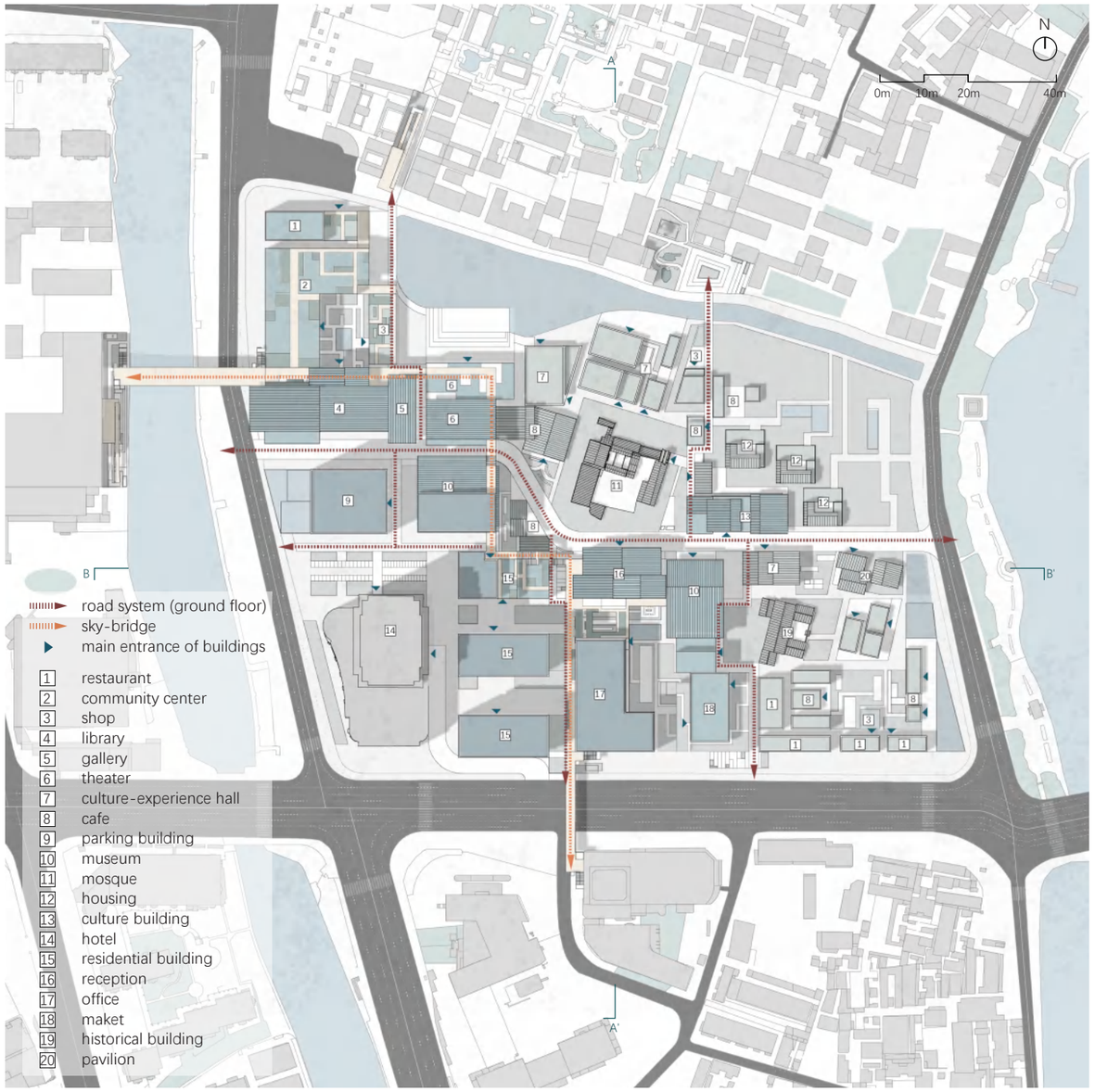


Crossing Street · Introducing Garden

- The "garden" design in the site is well connected to the Moon Lake and introduces different gardens.

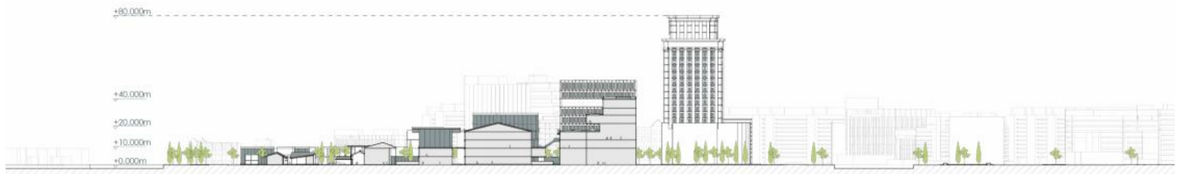
- The building types and building heights achieve the transition from ancient to modern and the overall layout mixes the two in a holistic way.

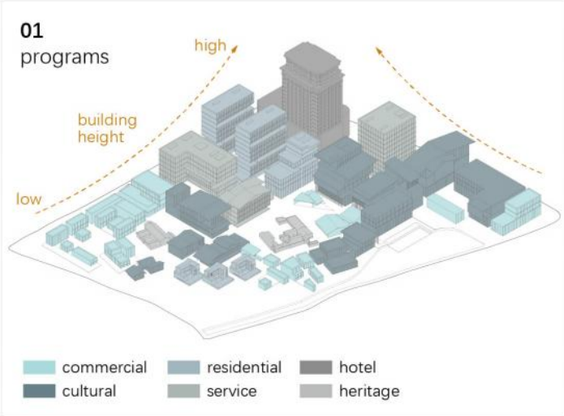
- The "street" design not only provide interesting paths to explore the different areas, offering different options to the users, but also connect to the context of the site.



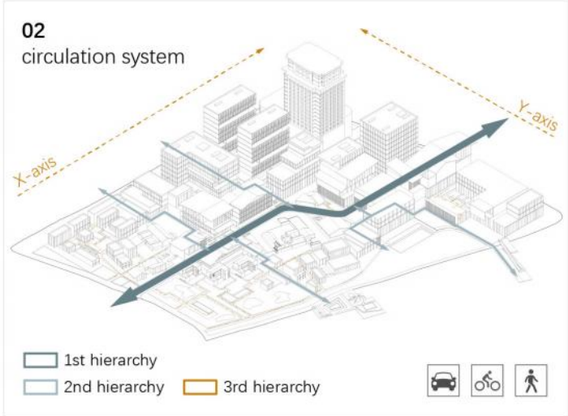
section AA'

section BB'



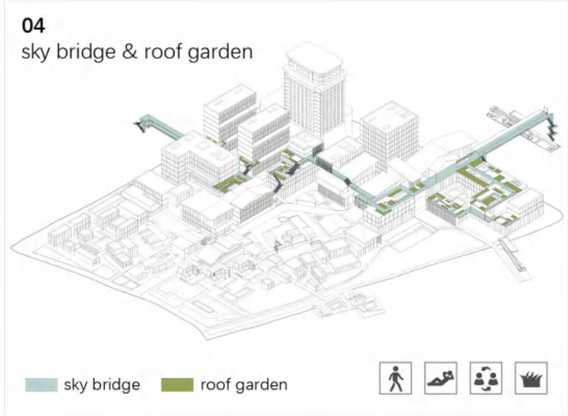


Mixed building programs attract people to all parts of the site and provide convenient amenities for them.

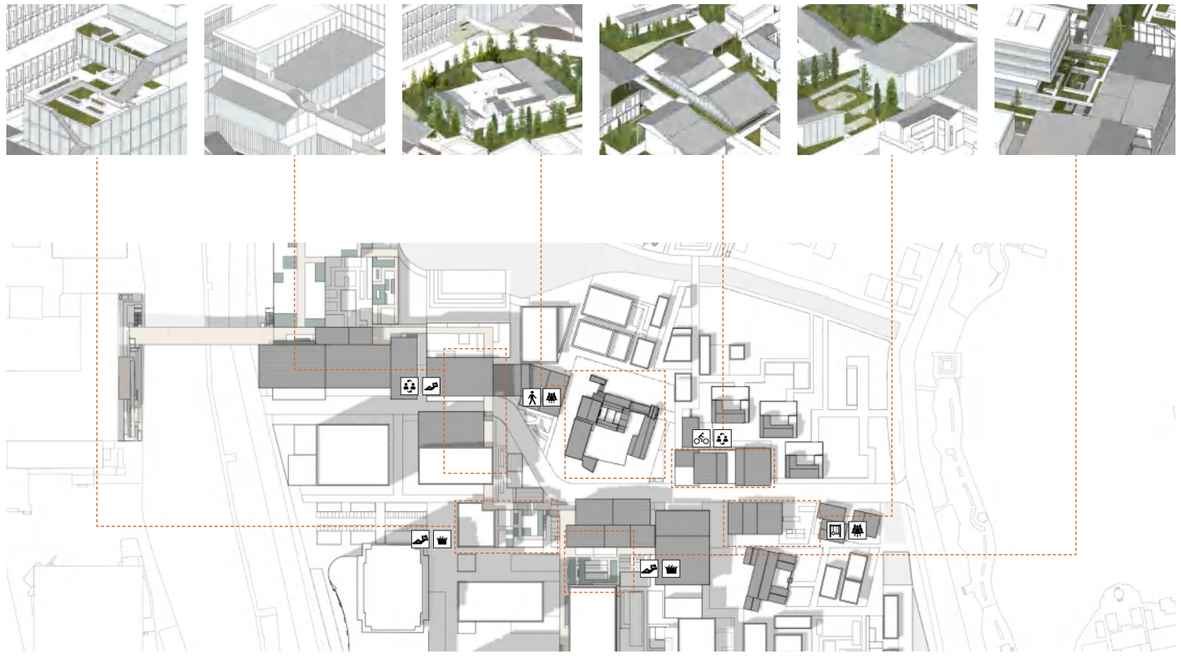


The well-connected circulation system provides users with more choices and links the programs together.

Green transition of greenery provides plenty of resting areas with good views and ecological benefits.



Sky bridge provide quicker access and roof gardens offer different views from the inside of higher floors.



Path - pet friendly

Located in front of a cafe, this pathway is lined with greenery that provides excellent views for those inside the cafe. And the place offers easy access for people walking their dogs in a beautiful setting with plenty of seating.

Sky bridge - connected to roof gardens

The sky bridge connects the higher floors and the roof gardens. On the bridge, people can not only pass quickly between higher buildings, but also communicate with people inside the building and on the roof garden. The rich vegetation provides good landscape and ecological benefits.

Courtyard - close to nature

The courtyard is enclosed by building groups. Not only is there an abundance of greenery, but there are also many public spaces. People can chat here and interact with those inside the buildings or on the skybridge, and children can play and make friends here.

Lakeside -theater performance

Located in front of a theatre, this small square provides a venue for outdoor performances. The proximity to the lake provides a great waterfront setting. People can also enjoy the view of the lake and chat with friends here.

06 Other works

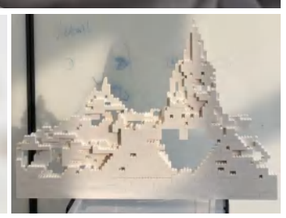
Some interesting works besides architecture design

Exhibition - Women & City

This is an exhibition about women and the city in Ningbo, aiming to explore the contribution women have made to the city and the role they have played in the city.

Lego construction - Gezhu project

Research based on Ningbo's historical figure Wang Yangming and his doctrines, and Lego's building blocks were constructed and exhibited at Yangming's former residence.



City walk - Urban memory

A number of city walks are organised to help more people learn about local history and city memories. The themes and venues are varied, for example, the “Shacun” city walk is used to explore the history and changes in Chinese calligraphy, while the "Lingqiao" city walk focuses on the changes in urban architecture.

Graphic design - Posters & Collages

These are mainly some activity posters I made for the student union during my undergraduate studies, used for school-wide activities.