

Portfolio of Architecture Program

XIAODONG LI

SELECTED WORKS · 2016-2022



CROSSING YARD

Date: Sep, 2020
Location: Shandong, China
Instructor: Long
Type: Collection Housing
Solo Work

The site of this project is located near the urban village in Jinan City, which provides housing for the low-income population in the city, and hopes that people with low social levels will be recognized by the society. Since most of the traditional residents in northern China are in the form of courtyards, this project has a courtyard as a unit, forming a unified form of courtyard residence for each household, and at the same time linking courtyards to form more public spaces

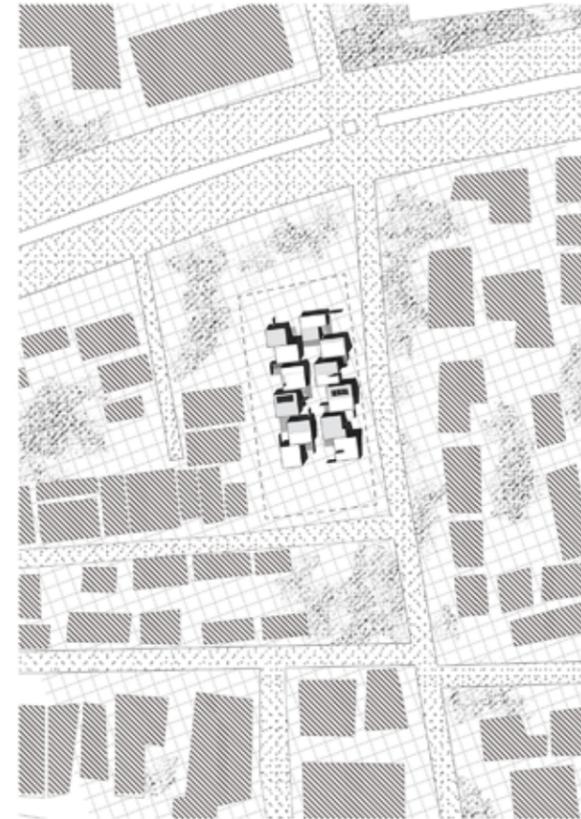


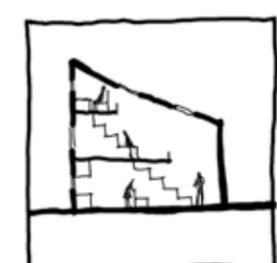
Figure Ground



Traffic Distribution

Site Plan

The site is located in the center of Jinan City, but due to the nearby village in the city, the urban texture had to be considered at the beginning of the design.



Life Scene Sketch

At the beginning of the project, several people's life scenes at home were conceived on the sketches, and there were various people



Size: 8.4m*8.4m*4.2m
Residents: 1-2



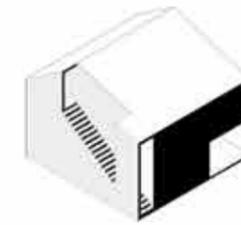
Size: 6.4m*8.4m*7.2m
Residents: 2-3



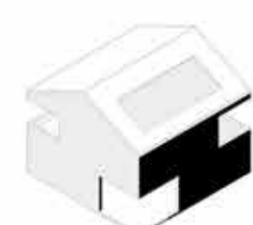
Size: 8.4m*8.4m*7.2m
Residents: 2-3



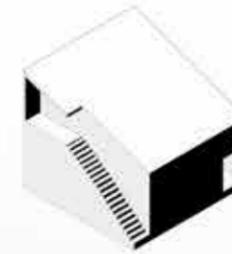
Size: 8.4m*8.4m*6.8m
Residents: >4



Size: 8.4m*8.4m*7.2m
Residents: >4



Size: 8.4m*8.4m*7.2m
Residents: 3-4



Size: 8.4m*8.4m*7.2m
Residents: >4



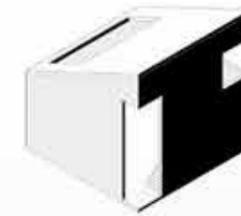
Size: 6.4m*8.4m*7.2m
Residents: 3-4



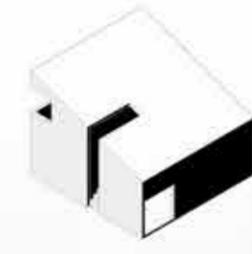
Size: 8.4m*8.4m*7.6m
Residents: 3-4



Size: 6.8m*8.4m*6.8m
Residents: 1-2



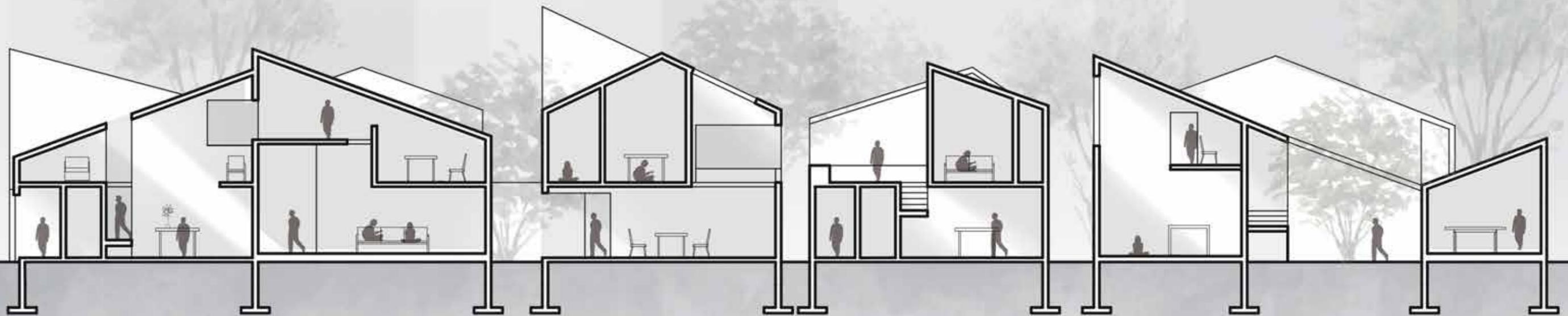
Size: 8.4m*8.4m*9.2m
Residents: >4



Size: 6.8m*8.4m*6.8m
Residents: 3-4

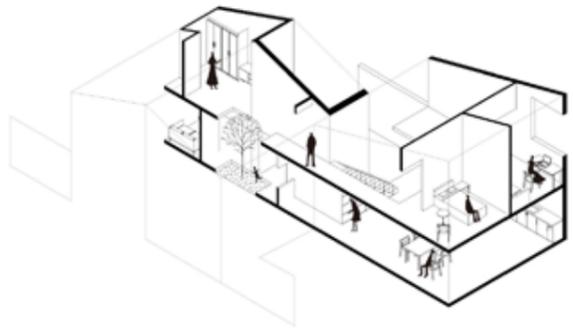
House Type Analysis

This set of drawings shows the shape of each apartment type, creating different volumes according to the previous scene and the life needs of each family

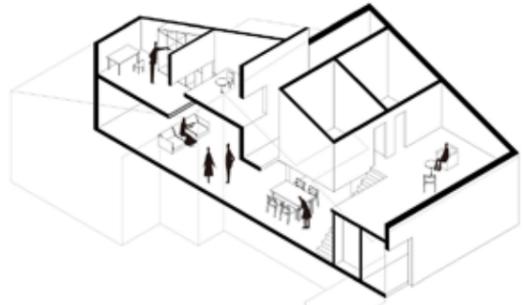


Grayscale

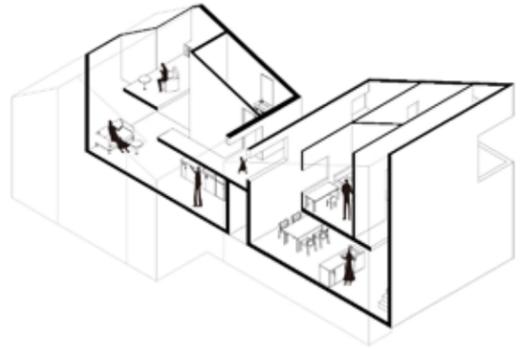
The blurred condition provides a new way of living where it encourages interaction between people, flowing of space, and larger living space. The system challenges the generic of the city block which often produces binary spaces in the urban fabric



Type: housing for 3-gen family



Type: department for students or workers



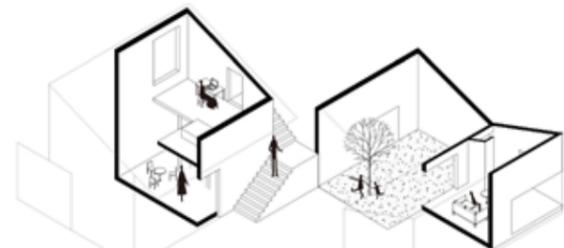
Type: housing for 3-gen family



Type: housing for 2 family



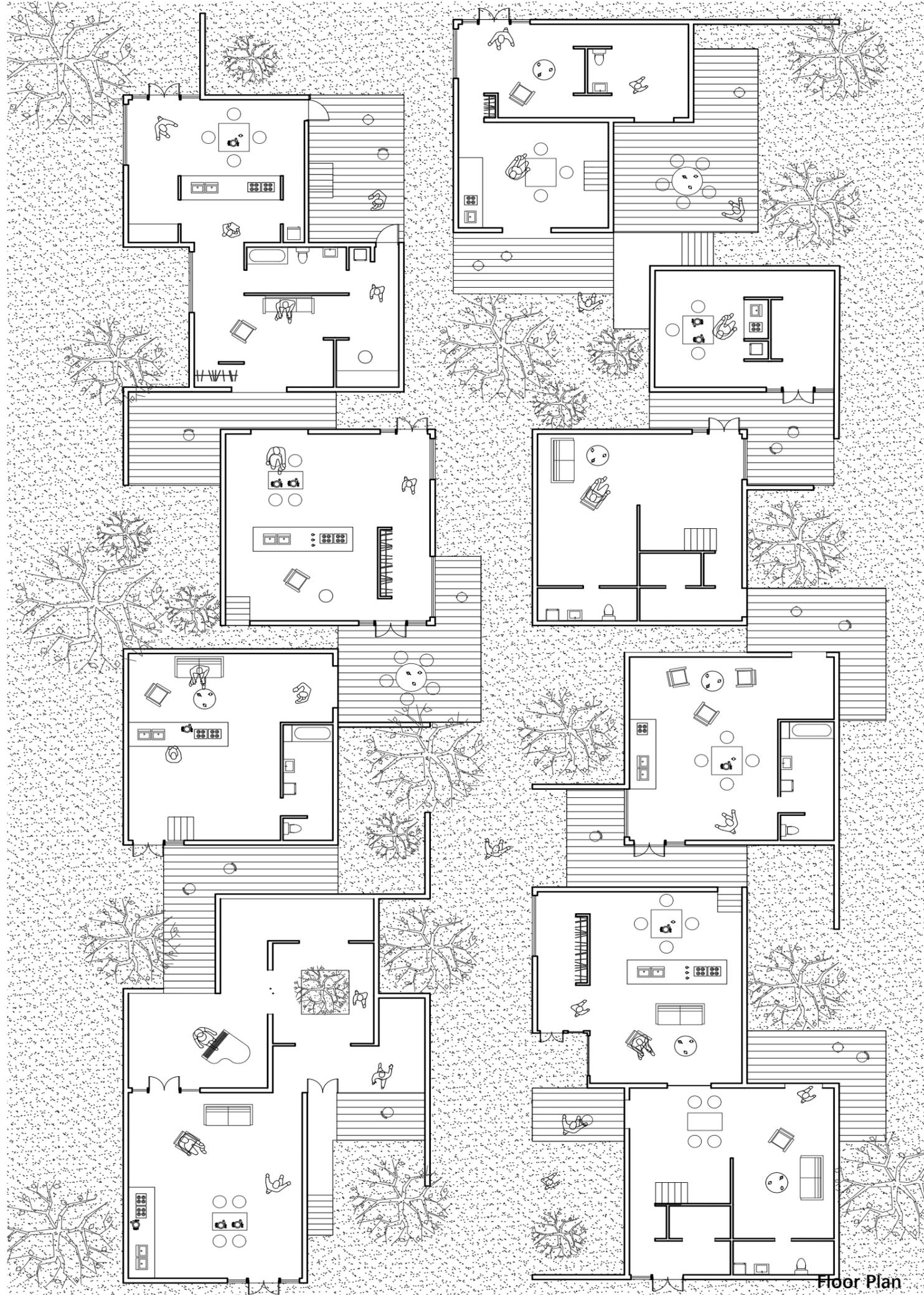
Type: department&studio for students or workers



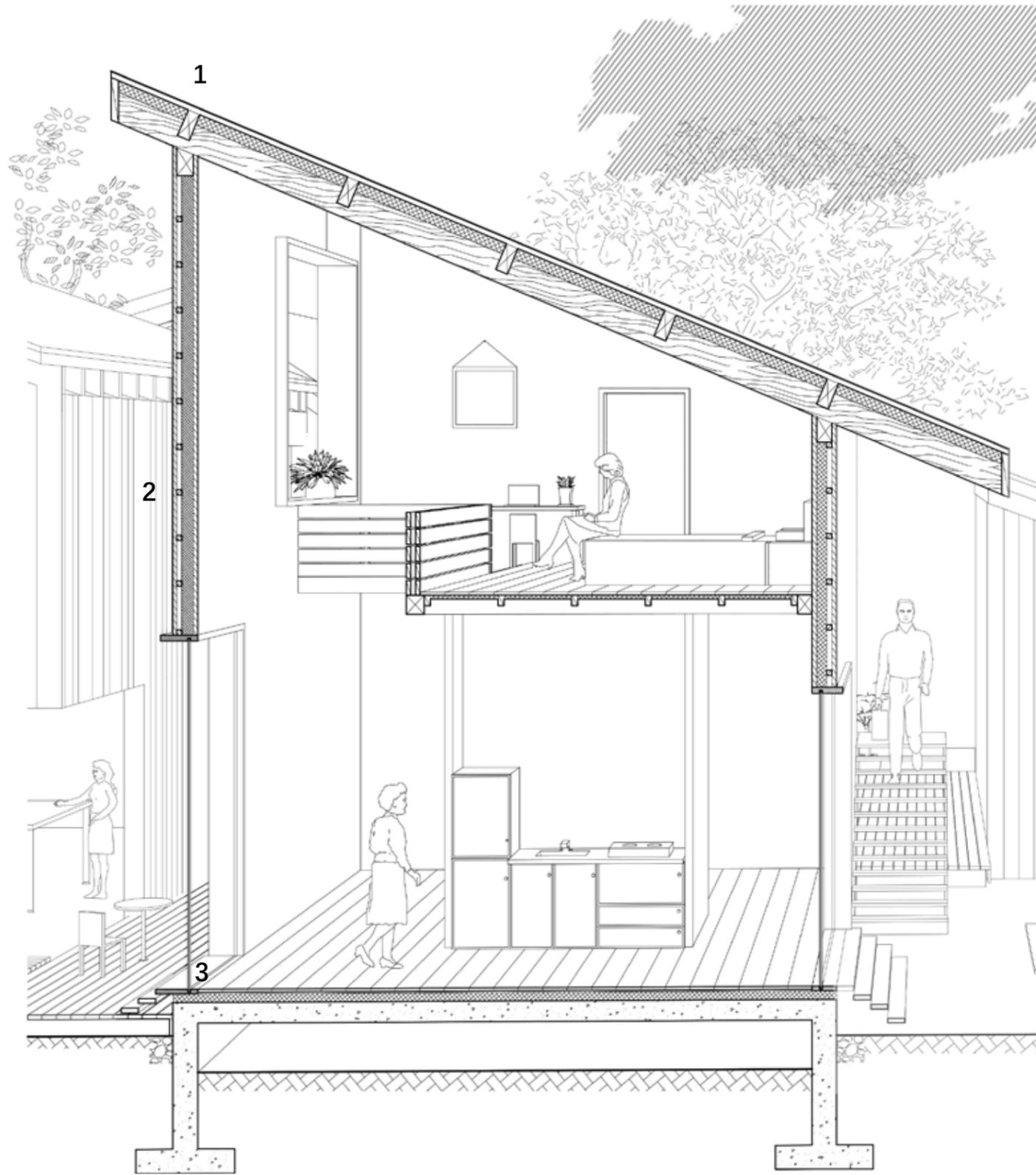
Type: housing for 2 family

Unit Study

This diagrams combines the previous types into a cross-sectional perspective, forming a different household experience



Floor Plan



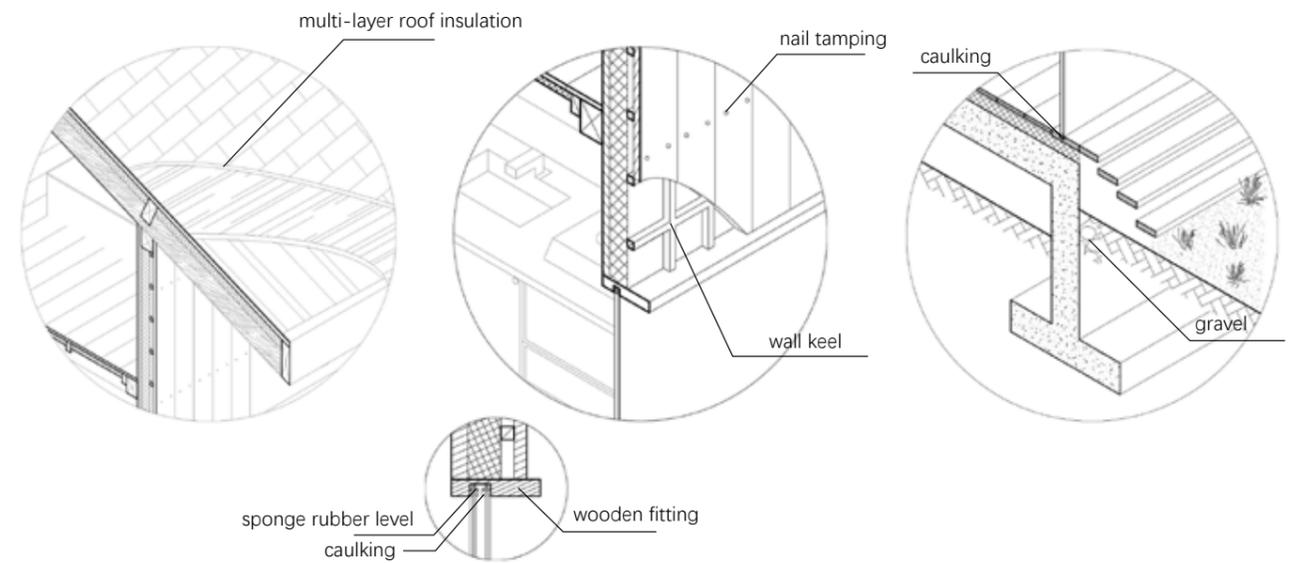
1 Roof Construction
 corrugated polycarbonate
 rafter: 30*108mm @455mm
 wiped oil stain
 insulation layer: 50mm
 crossbeam :35*120@1820mm
 wiped oil stain

2 Wall Construction
 surface layer: 15mm
 battens: 15mm
 insulation layer: 50mm
 interior surface:15mm

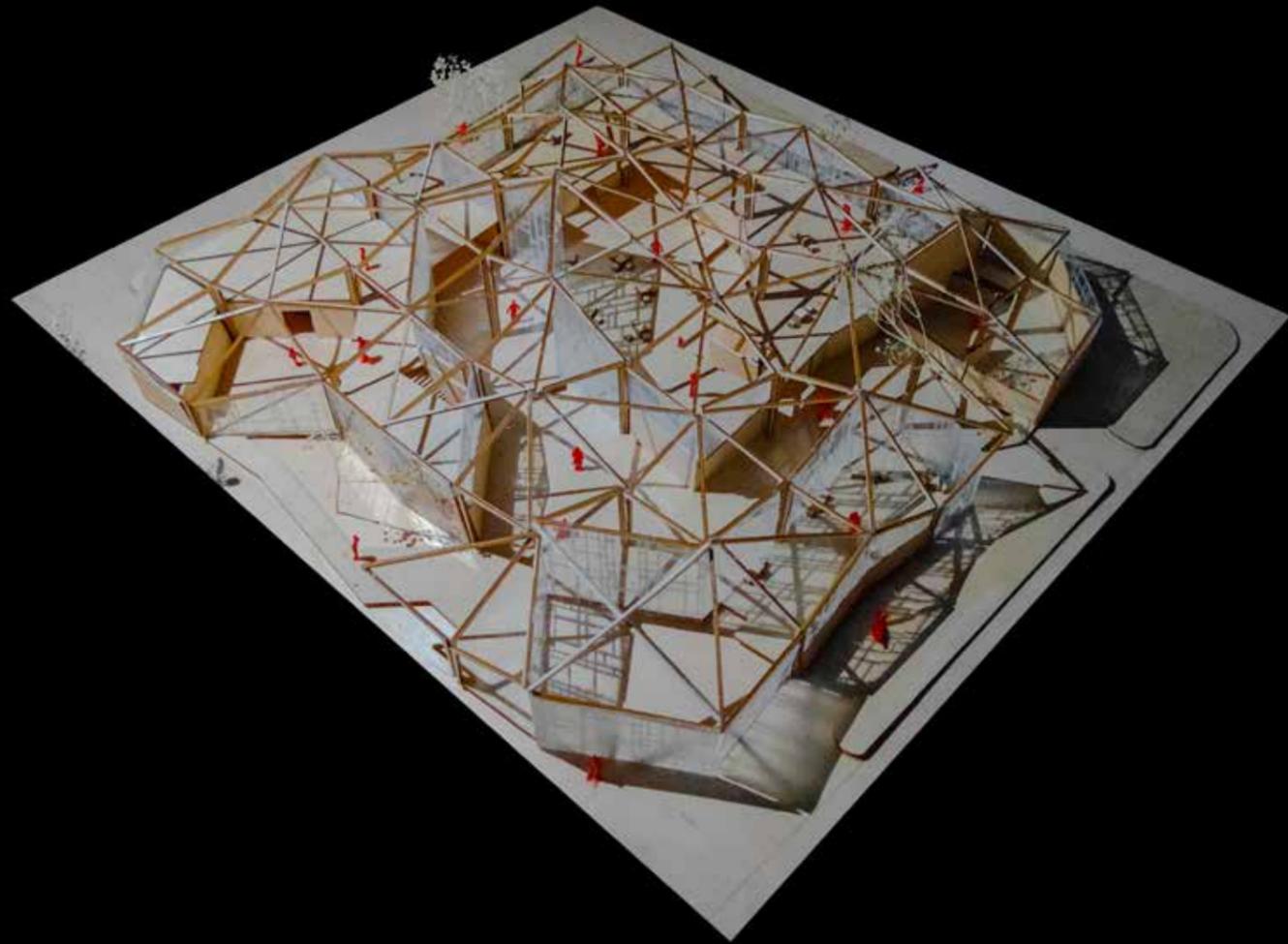
3 Floor Construction
 flooring: 18mm
 structural wood: 12mm
 rigid insulation layer: 50mm
 concrete: 120mm
 concrete joist: 120*120@450
 ground slab: 240mmW



Interior Perspective
 Intimate private space within share public space



Detailed node sample
 Through the study of the structure, this diagram introduces the details of the nodes



FOREST WITHIN

Date: Jun, 2019
Location: Shandong, China
Instructor: Chaoxian Li
Type: Community Center
Solo Work

The project is located in the Jinan Iron and Steel Community Center on the south side of the old Jinan Iron and Steel Industrial Site. In 2017, Jinan Iron and Steel was forced to relocate. Many retired workers were unable to get jobs and had to spend their lives at home. In order to improve their living needs, this design A community center will be built for those workers who have retired in Jigang

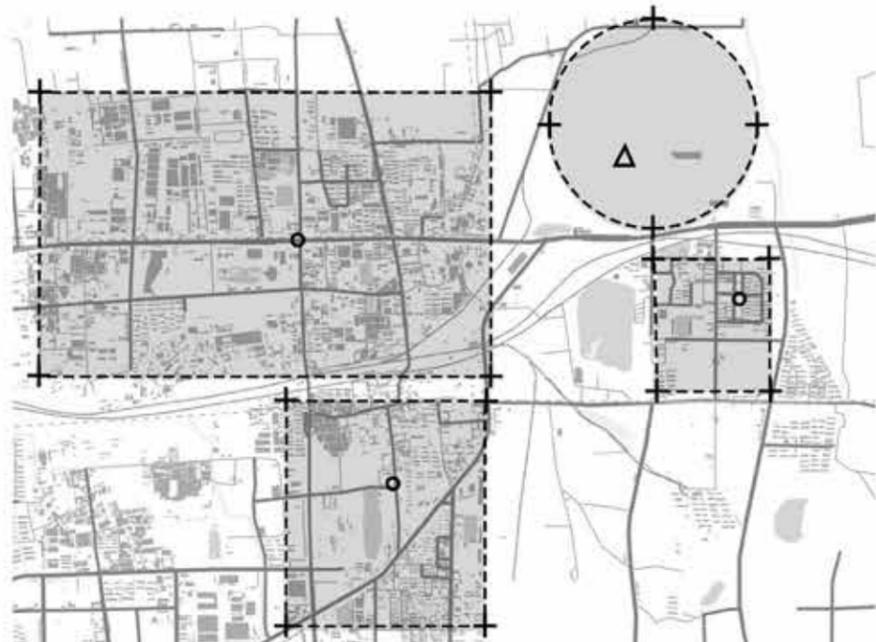
Through research and interviews, most people don't want to mention the scene in the Jinan Iron and Steel Factory's studio. After retirement, they are more exposed to nature. About nature and architecture, the plan is composed of more than one hundred inverted L-shaped wooden structures. Four structures are combined into a single unit, which makes it feel like a bionic tree and forest.





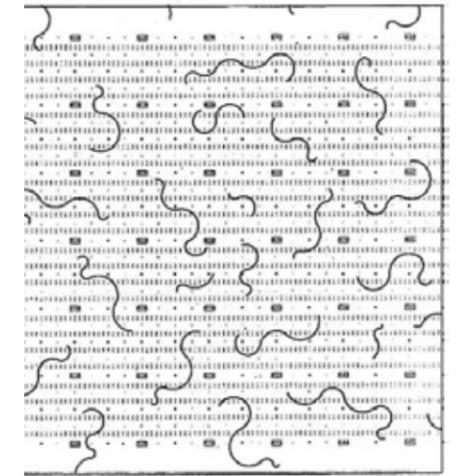
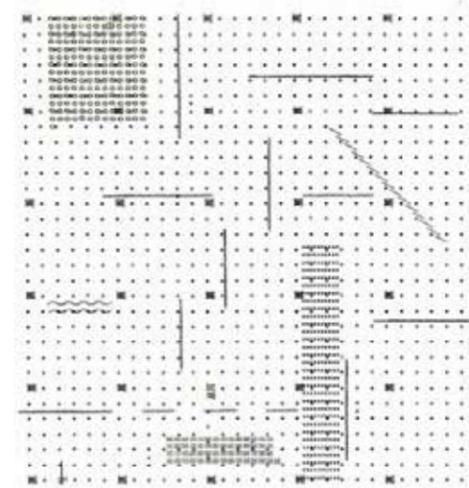
Site Background

In 2017, Jigang was forced to relocate, and many retired workers were unable to get jobs. In order to improve their living needs, this design will build a community center for those retired workers in Jigang.



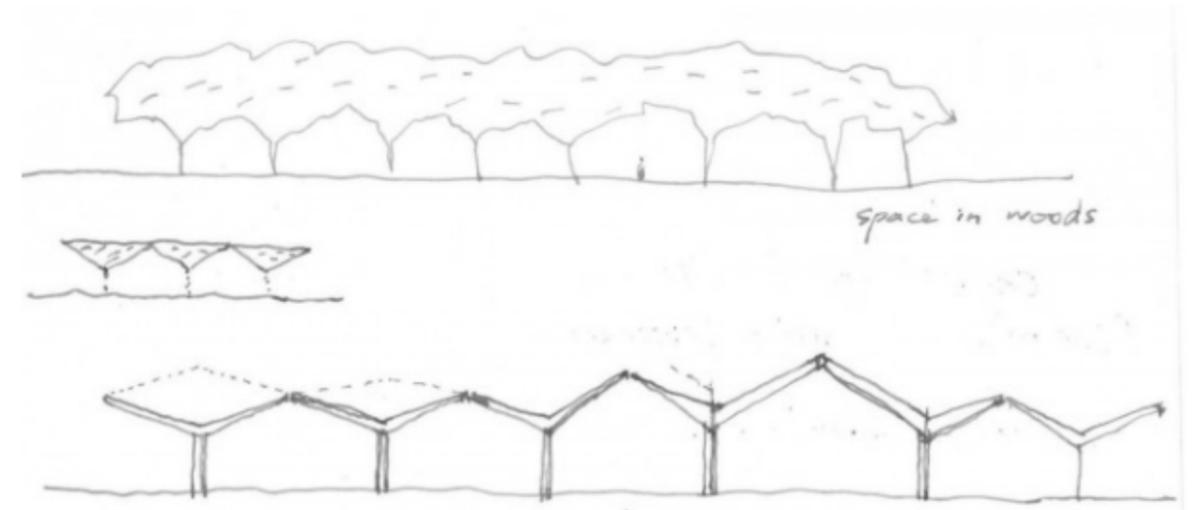
Geometric Analysis

The plan is located in the center of the Jinan Iron and Steel Community on the south side of the old Jinan Iron and Steel Industrial Site. There are many residential areas near the old steel industry.



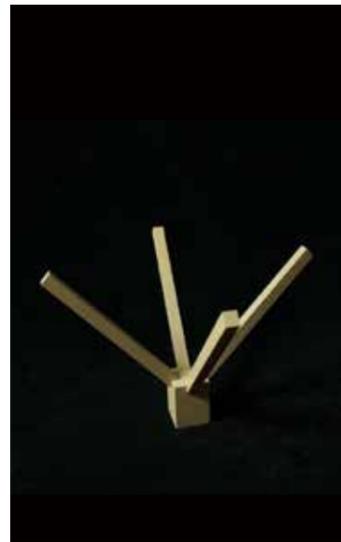
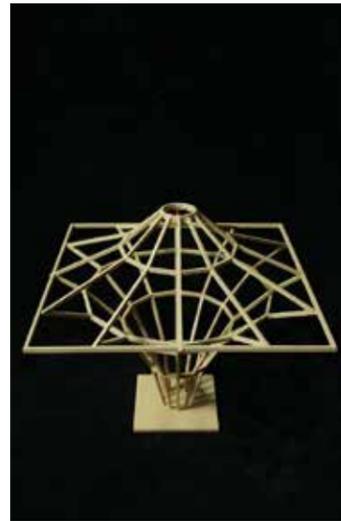
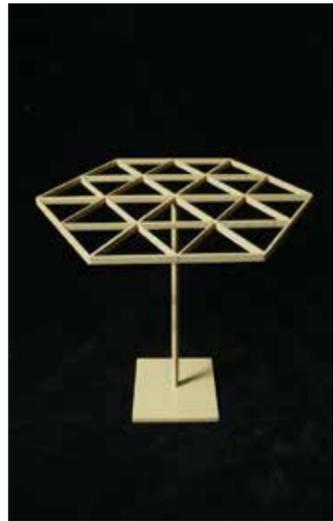
Archizoom "No-Stop" City

The Archizoom group of Italy keenly proposed in the late 1960s that, as a product of the capital-led production and consumption system, the metropolis is no longer a place, but has become a condition. They therefore proposed a bold urban illustration-No-Stop City. In this proposal, the city becomes a homogenous grid system with features such as continuous plane, infinite spread, and local microclimate.



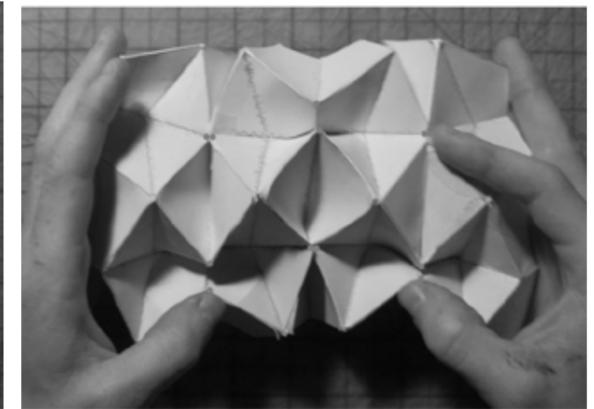
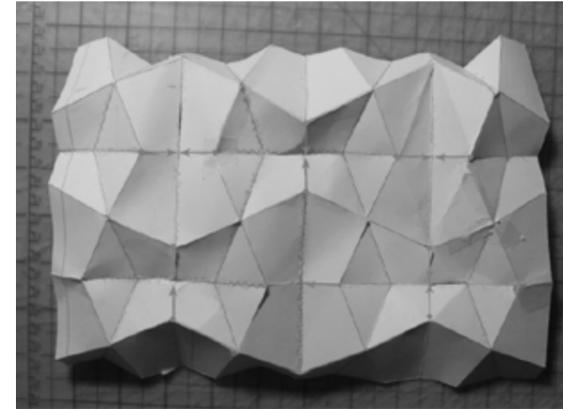
Concept Sketch

The first development is a tree-like structural unit with a column as the center and four cantilever beams extending, and then the grid size is determined, which has a certain proportional relationship with the height of the space to be created.



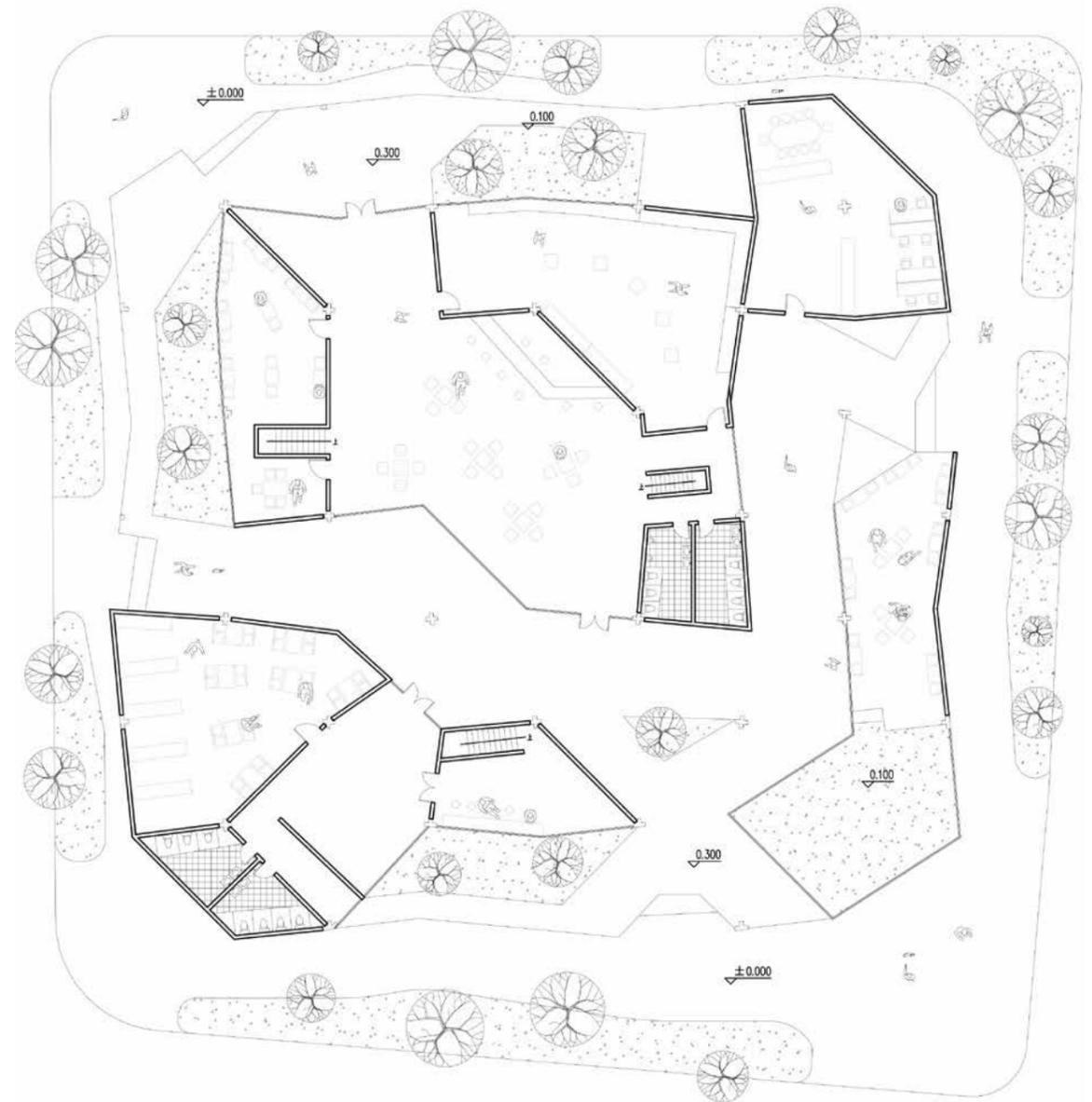
Unit Screening

After many attempts, some structural units were not used because of serious material waste, and some monomers were not used because of lack of good space effects.



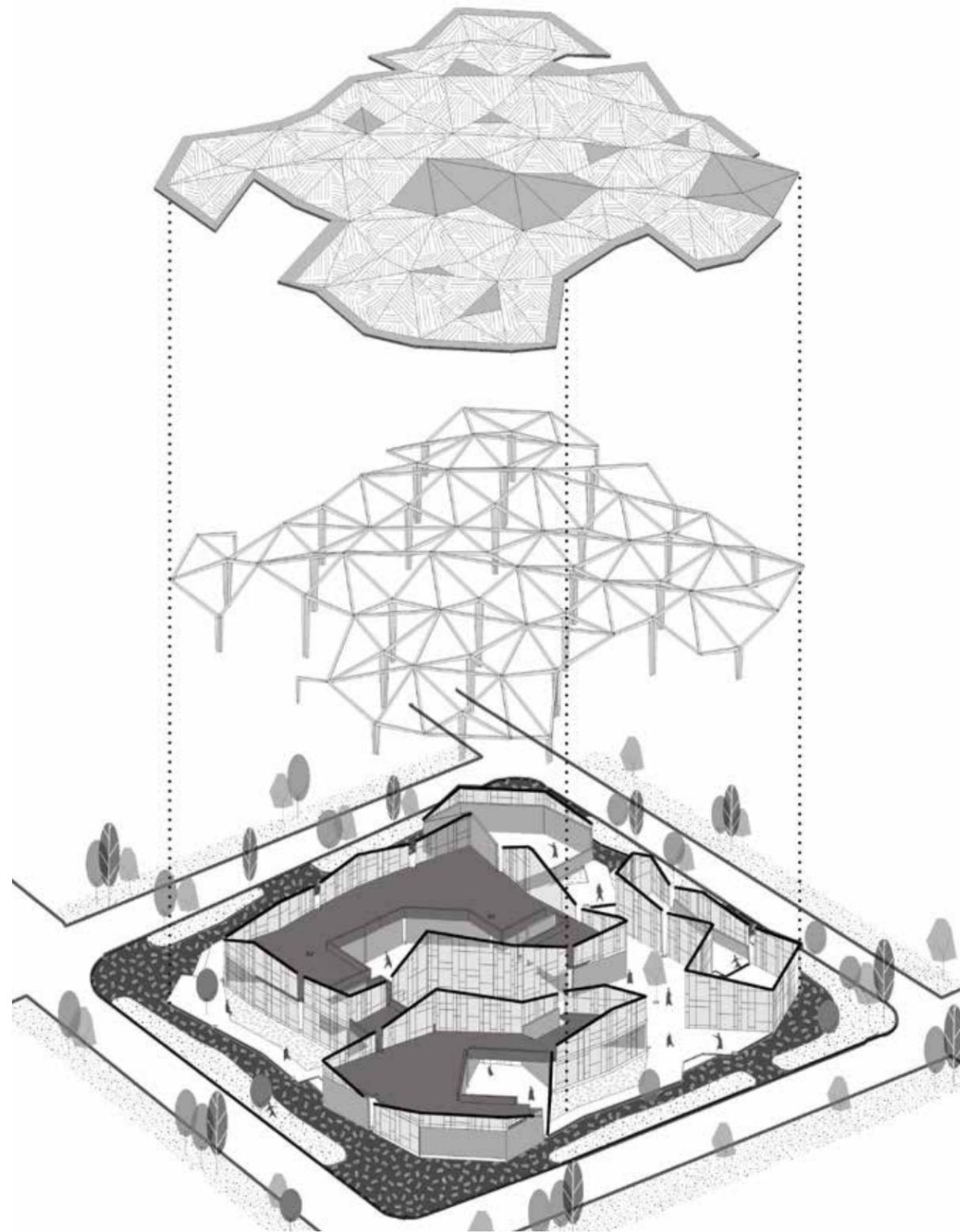
Roof Folding

Through an accidental origami game, the roof form of the building is determined



Group Plan

Walking in the completed building, the space itself does not have obvious directionality. The sight always follows the scenery outside, just like walking in the woods. The changes in furniture and furnishing arrangements give the space a completely different way of use.



Exploded View

Just like natural trees, the types are the same but each tree is different, so that the overall space produces ups and downs, and the roof becomes a vivid artificial landscape. Nature really gives us endless nutrients to our imagination.



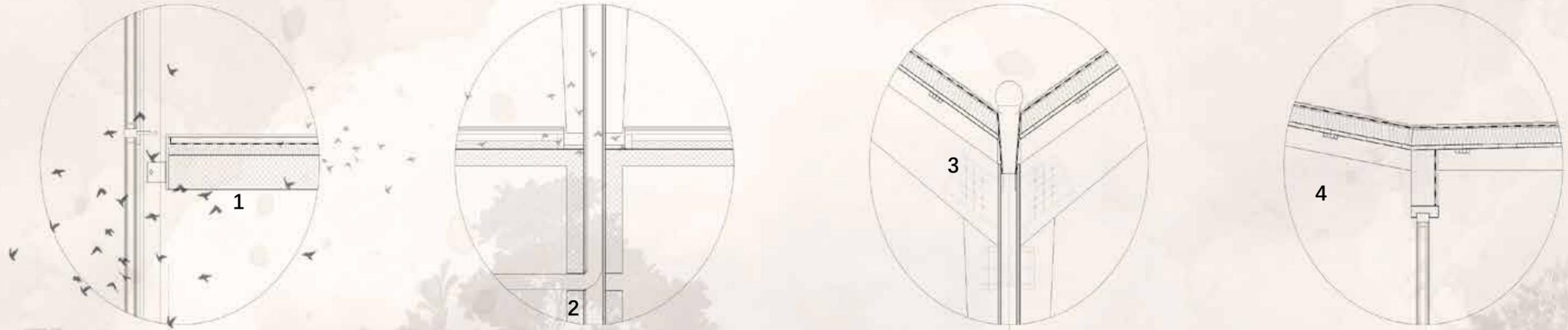
Interior Perspective

The broken stone slabs on the ground are intended to enhance the non-directionality of the space, and the dark gray tones enhance the sense of rising of the wooden structure from the ground. The exposed surface of the roof shingles is completely free of anti-corrosion treatment, and the color will turn gray after natural weathering in order to be more integrated into the environment.



Interior Perspective

In this building, the characteristics of the place are therefore not dependent on a specific way of use, but more dependent on the building itself-the form, materials, light of space and structure, and the atmosphere formed by their interaction with the site.



1 Floor Construction
 cement mortar: 20mm
 cement screed: 50mm
 vacuum aluminised : 18mm
 waterproofing coating: 60mm
 concrete: 120mm

2 Ground construction
 concrete: 120mm
 structural square column: 180*180*16
 rain pipe

3 Drainage system construction
 drivepipe: 50mm
 w outfall

4 Roof construction
 wooden roof tile: 14mm
 batten: 40mm
 roofing felt: 2mm
 OSB: 15mm
 rafter: 70mm



PARTY THEATER

Date: Jul, 2019

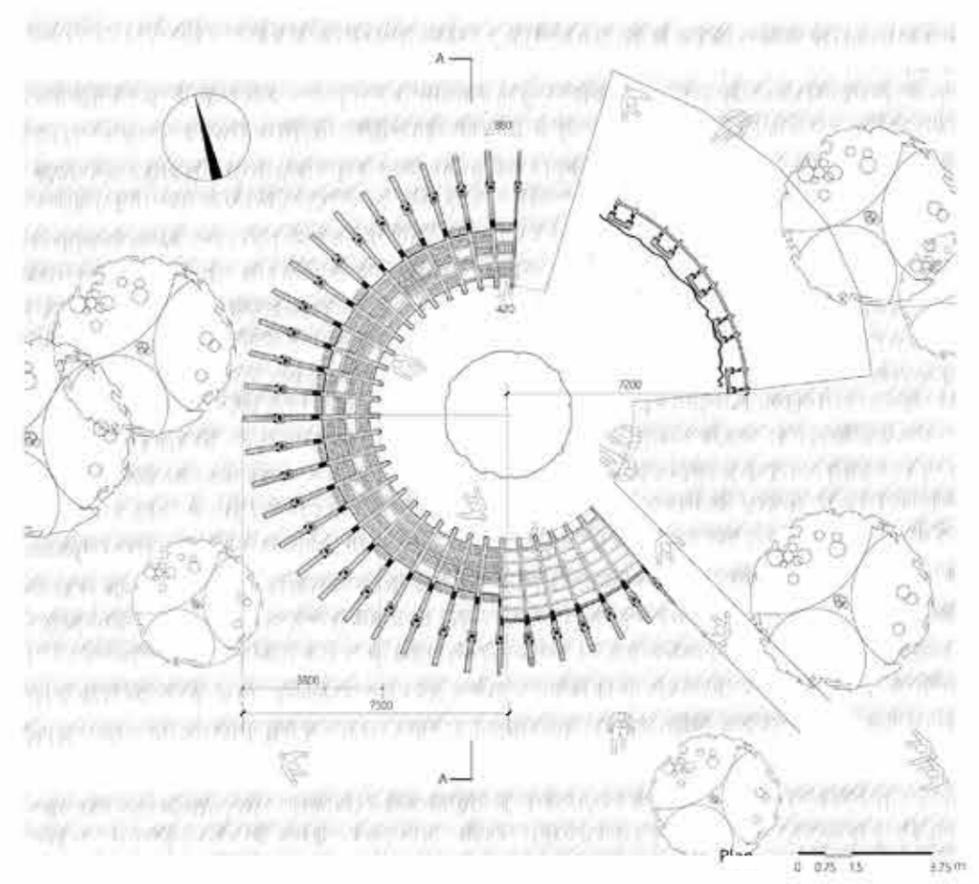
Location: Jiangsu, China

Instructor: Wenyan Jin, Jian Shen, Linhai Han

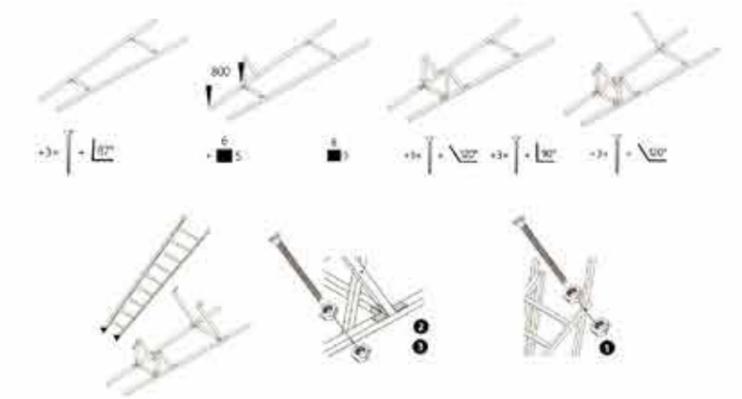
Type: Rural Structure / Group Works (15%)

Feat. Shibo Sun, Yutao Chen, Boyuan Cao, Yang Zhou, Zhiyuan Bai, Qingqiu Kong, Huiyun Zhou, Shaoyang Du, Ri Suo, Liyao Ni, Jinyi Shangguan, Yuchen Lin, Yukai Yang, Ziyi Zeng, Hongrui Bao

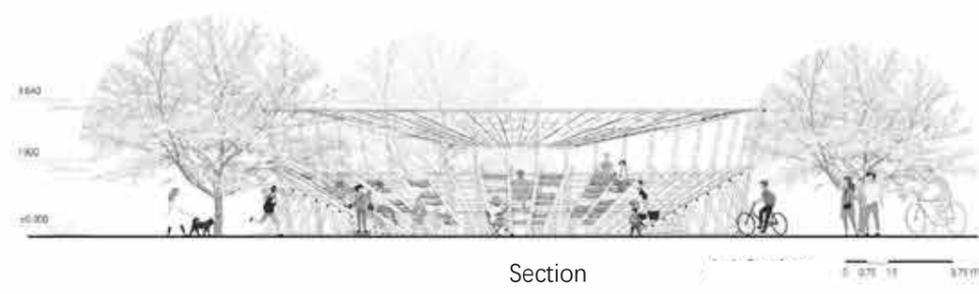
"Climbing the ladder – party theater": use the ladder to open the party. Aiyuan Town is a small town that grows fruit trees. The ladder is the most important production tool for every household. It comes with local behavior symbols. In order to integrate into the local life, based on the form of assembly, the ladder and the drying frame for busy farming are the main elements of the theater. Each household carries tools and materials to the pear garden to build or disassemble together to form a mobile assembly theater.

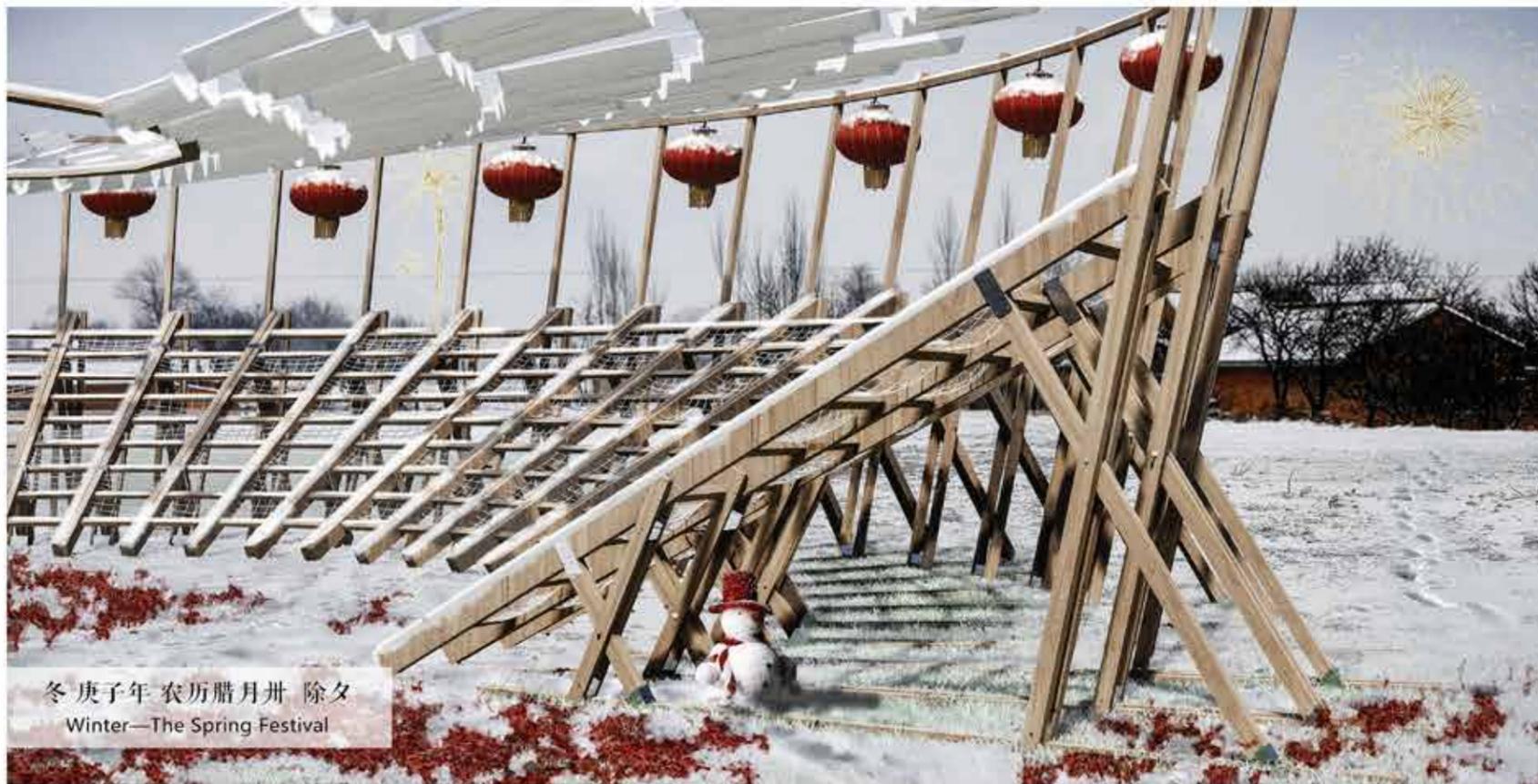


The ladder theater integrates into the original land in a humble manner. With the passage of time, the four seasons have changed, and life has changed between busy farming and leisure. Theater has become a medium for interaction between people and nature.

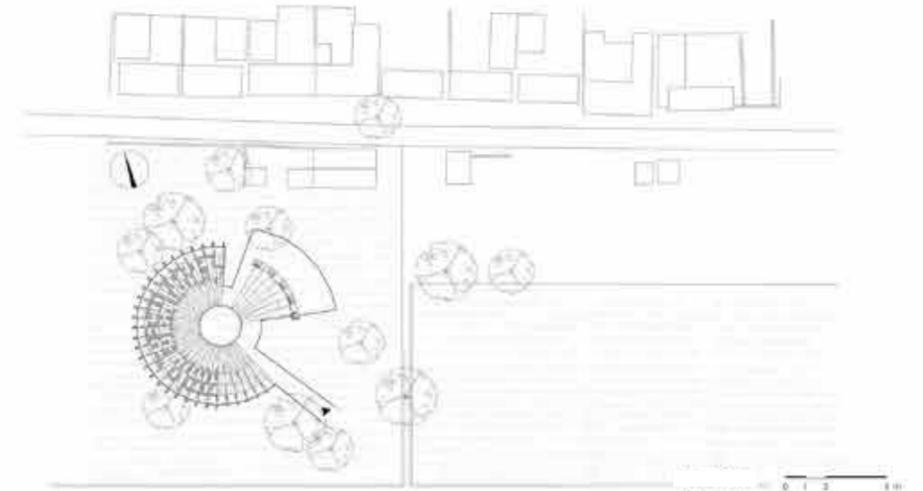


The main structure is composed of a bottom wooden frame, a triangular support system, a wooden ladder, a steel-wood joint and a stop.



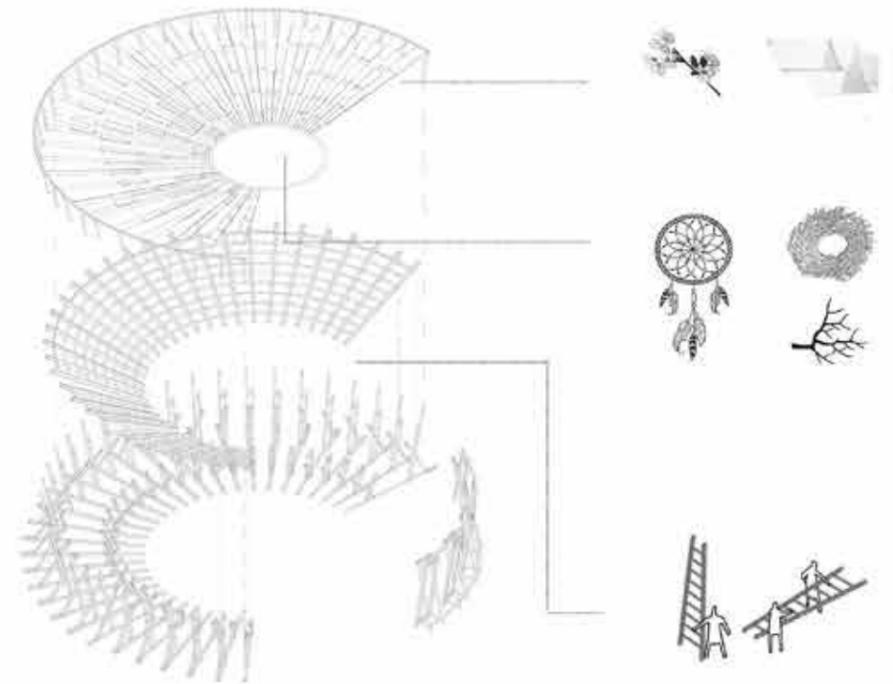


冬 庚子年 农历腊月卅 除夕
Winter—The Spring Festival



Site Plan

Therefore, the detachable assembled theater has also become a device with a life cycle and adapted to the conversion of villagers' lives. Ladders are the daily life of rural life. From farming tools to theaters, daily activities are active and sublimated.



Decomposition Axonometric map

It provides a suitable place for the farmer's leisure time to meet, watch the movie, and perform spontaneously. At the same time, the villagers can develop more uses spontaneously and awaken the life through the theater to revitalize the pear garden.



Elevation



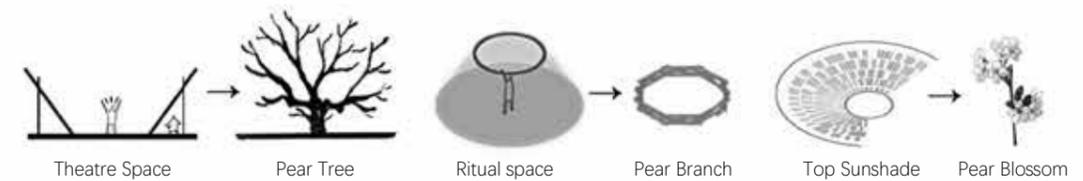
Building Process

The construction process took three weeks, and most of them were completed by students. As many people's first physical construction, this construction experience has become particularly important

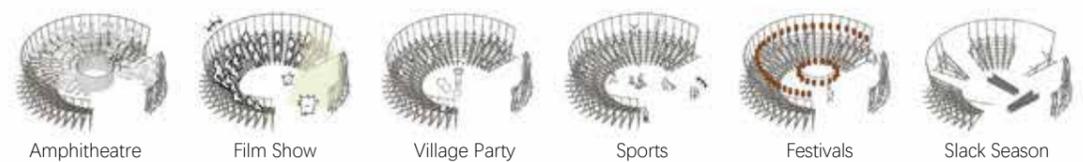
| | | | | | |
|---|----|-----------|---|--------|------|
| 5 | 6 | 3200 x50 | L | 90° | x250 |
| 5 | 6 | 2500 x40 | ∠ | 60° | x46 |
| 4 | 6 | 3500 x106 | └ | 120° | x32 |
| 6 | 6 | 3500 x1 | L | 90° L | x32 |
| 3 | 6 | 3500 x33 | ∠ | 87° | x166 |
| 3 | 6 | -- x9 | └ | 176.7° | x53 |
| 1 | -- | x- | | | |

Material List

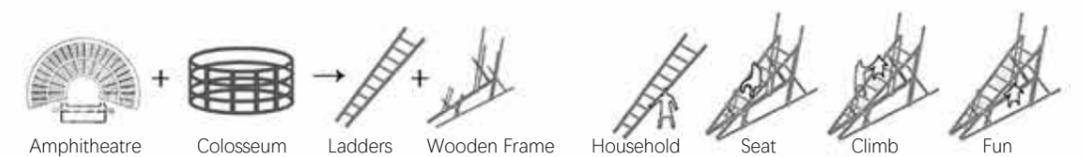
the bottom support adopts a triangular force system, and the ladder is combined with the drilled nail through the special steel sheet, which is easy to install and easy to disassemble



Elements

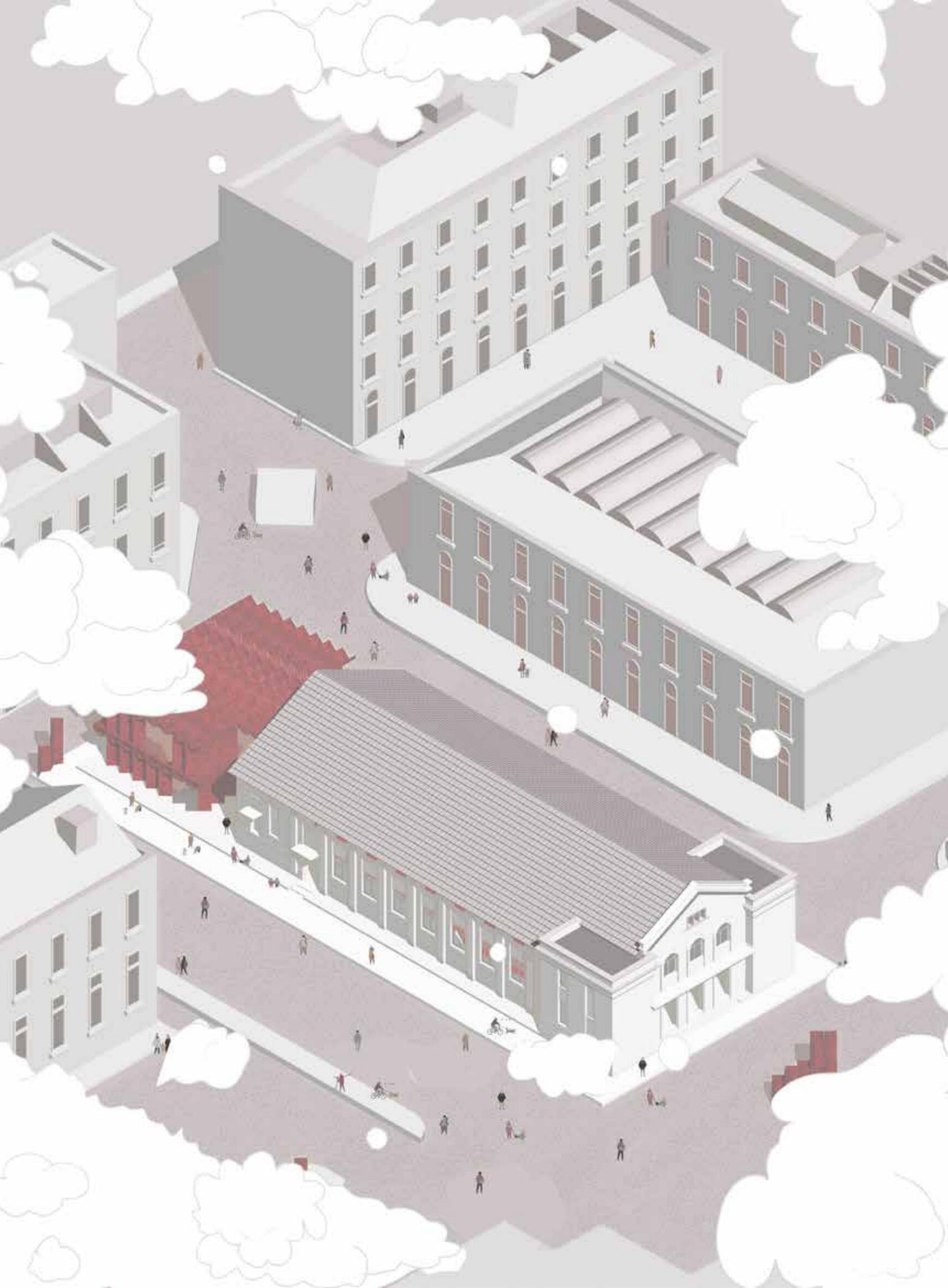


Lifecycle



Concepts

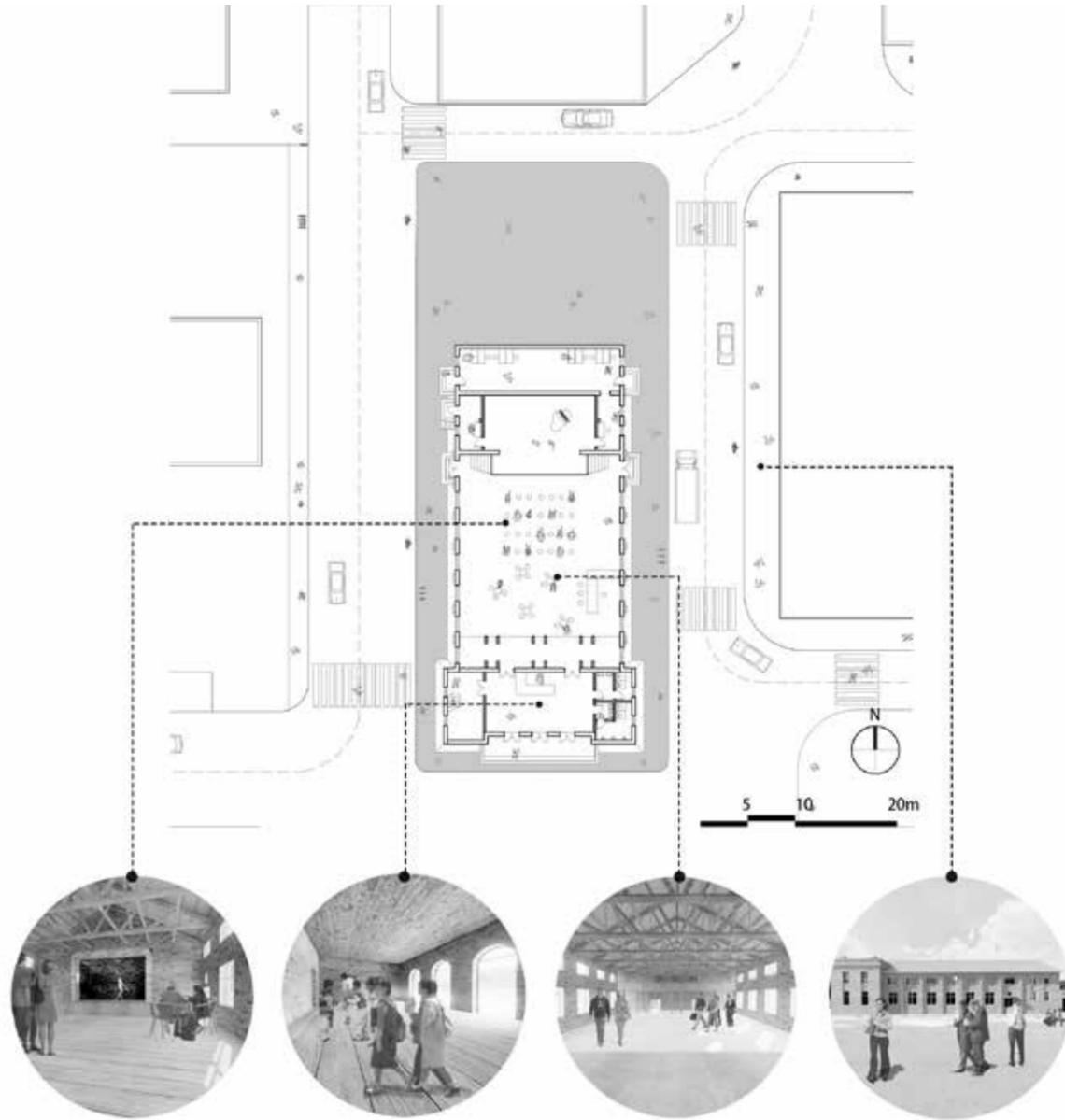
Behaviors



PREFABRICATE UTOPIA

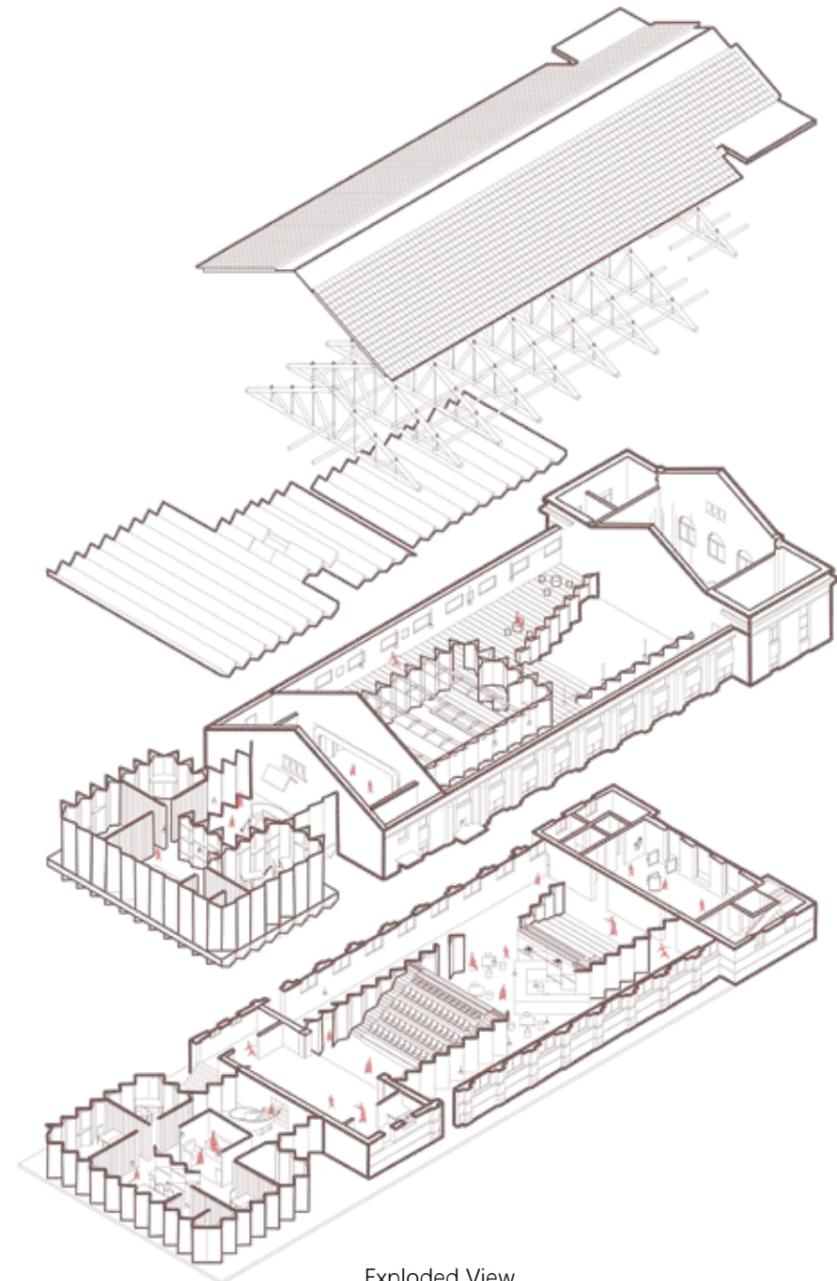
Date: Nov, 2020
Location: Shandong, China
Instructor: Long
Type: Theater and Exhibition
Solo Work

Advancing into the 21st century as architects enables us to explore and deliver an increasing number of sustainable approaches to architecture and the building industry. Whilst previously, concrete and steel have been predominately used throughout the construction industry, architects are now beginning to realise the importance of new technologies, such as timber, and use them for efficient construction, sustainability and cost effective purposes.



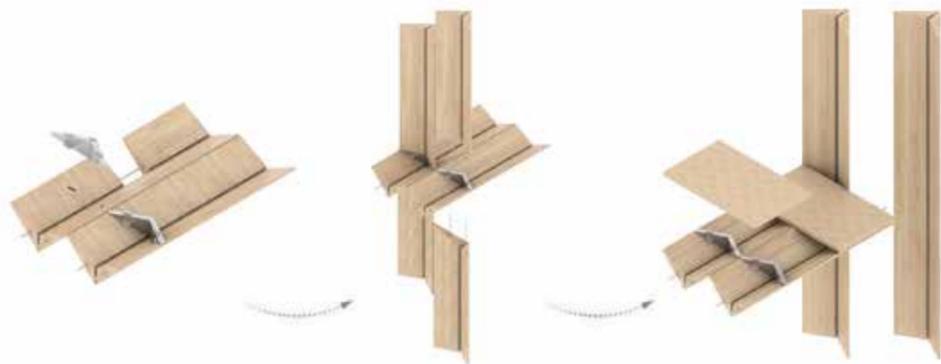
Original Site Plan

The project is located in an old church in a university in Jinan. It was built during the Republic of China. The original church was positioned as a small theater. Now the theater will be transformed into a theater, exhibition hall, and office building.



Exploded View

The first floor of the plan is set as the recreation area and the entrance public area. The walls of the old building have not been modified, but some new walls have been added.



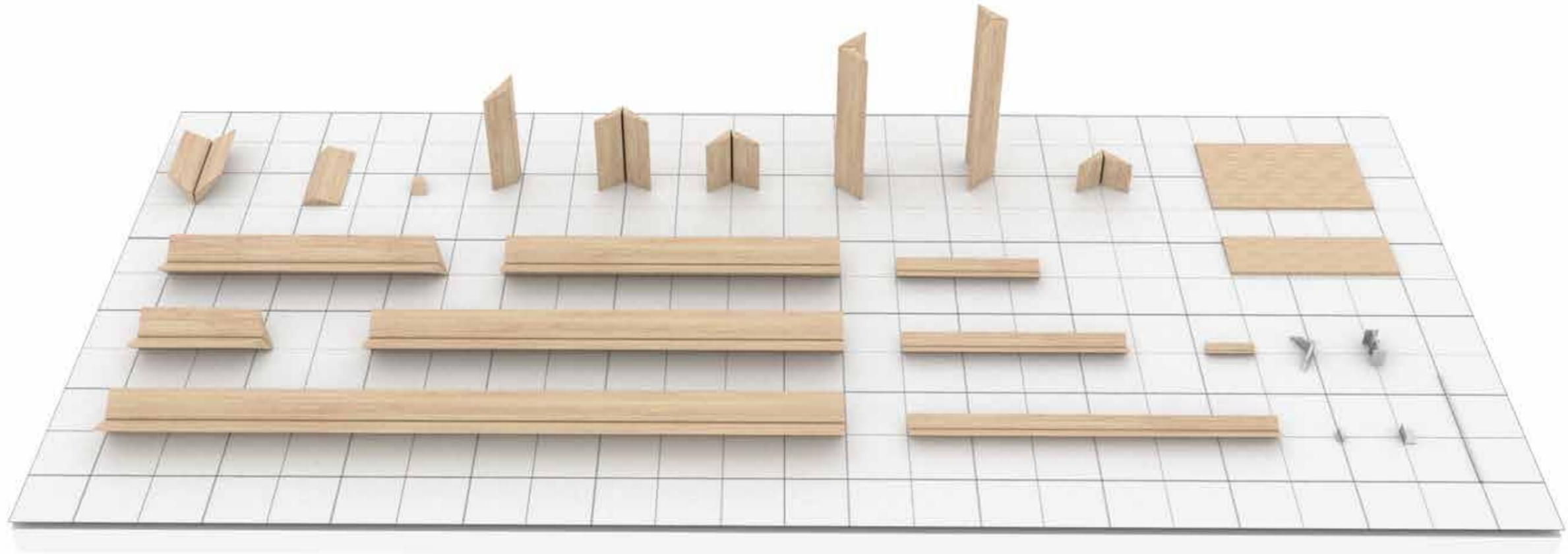
Combination A

The first node is composed of two wood pieces of the same unit to form the floor, the wall is connected by a metal node in the middle



Combination B

The second node is reduced by two times from node A and mainly constitutes stairs and large steps



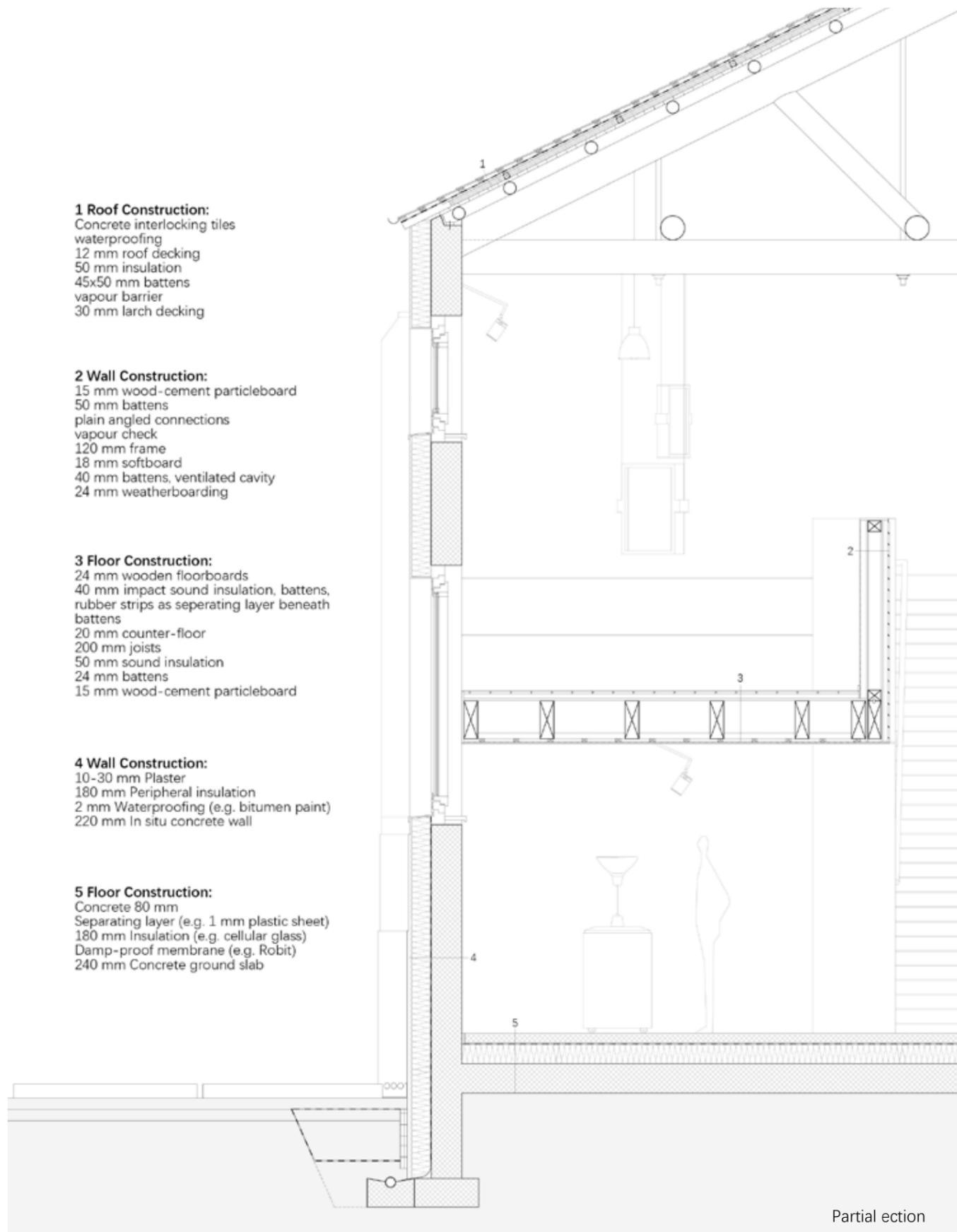
Prefab List

The architectural result can be understood as the whole of engineered wood, where the walls, ceilings and columns follow the same organizational logic throughout the building.



Layout of all

After deconstructing the building, all the timbers are displayed one by one, so that the budget calculation of the plan is faster, the error is smaller, and the construction efficiency is improved.



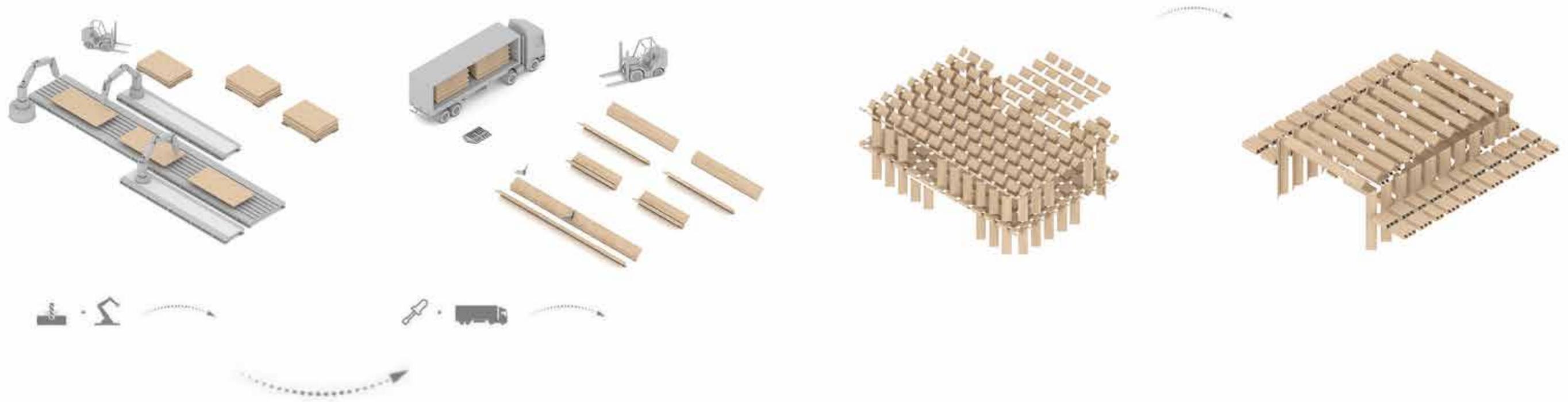
Perspective Outside

In the wooden theater corridor, the old building and the new wooden structure are in sharp contrast



Perspective Inside

In the interior of the theater, because the material is closer to nature, sitting inside the theater surrounded by a wooden structure has a warm and comfortable feeling

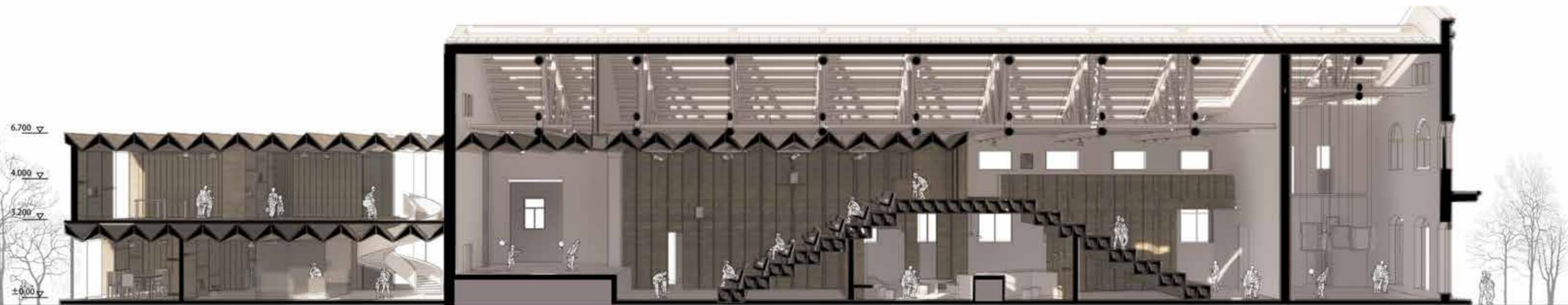


Prefabricated Program

All the additional parts of the plan are prefabricated by the manufacturer in advance, and the production efficiency is faster through tools such as robotic arms

Prefabricated Deconstruction

Due to the rapid development of prefabricated building technology in the world today, the plan can be assembled and completed within 2-3 days, which greatly reduces the budget cost



Section 1:200



WIDE & NARROW

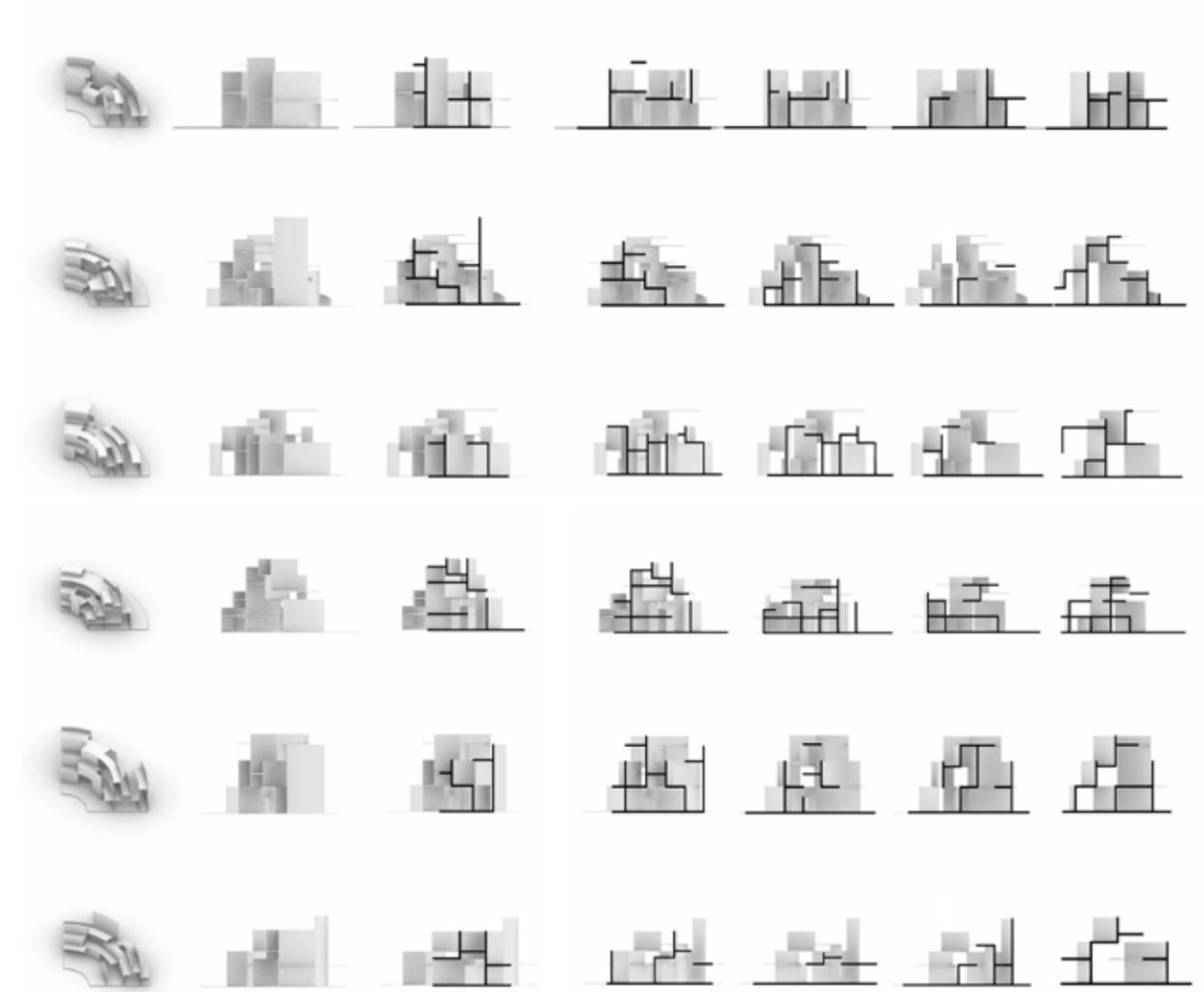
Date: Jun, 2021
Location: Shandong, China
Instructor: Xiaoming Gao
Type: Graduation Design & Exhibition
Solo Work

With the progress of the times, dynamic architecture is gradually coming into people's life. Therefore, as a designer of the new era, it has become a new design trend to make static architecture dynamic. The project is located near The Yaoqiang Airport in Jinan, Shandong Province, with the theme of Xin Qiji (Poet of China's Song Dynasty) Memorial Hall. The architectural project takes commemoration, nostalgia and future-oriented as the theme, integrating the concept of dynamic in the new era and bringing vitality to the development of the new region.



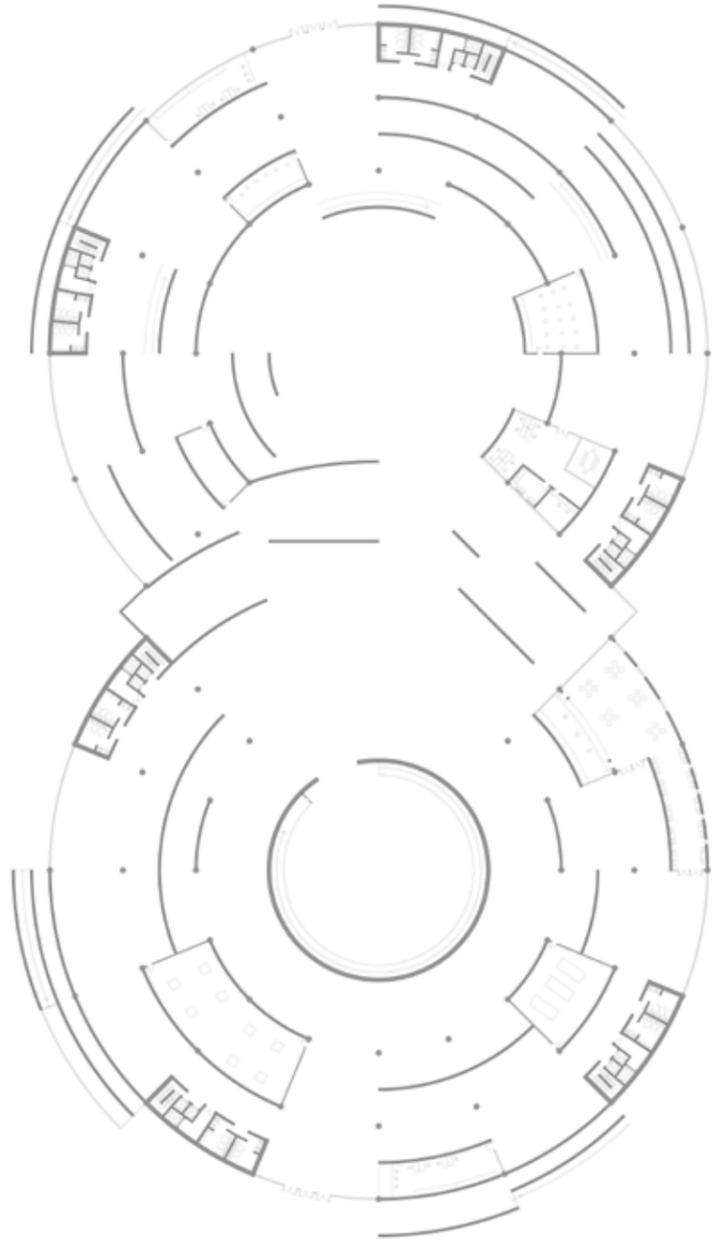
Site Plan

The proposed base is located near The Yaoqiang Airport in Jinan. As a new development area planned by the government, although the surrounding area is dominated by villages at present, the new memorial hall will bring vitality in the near future



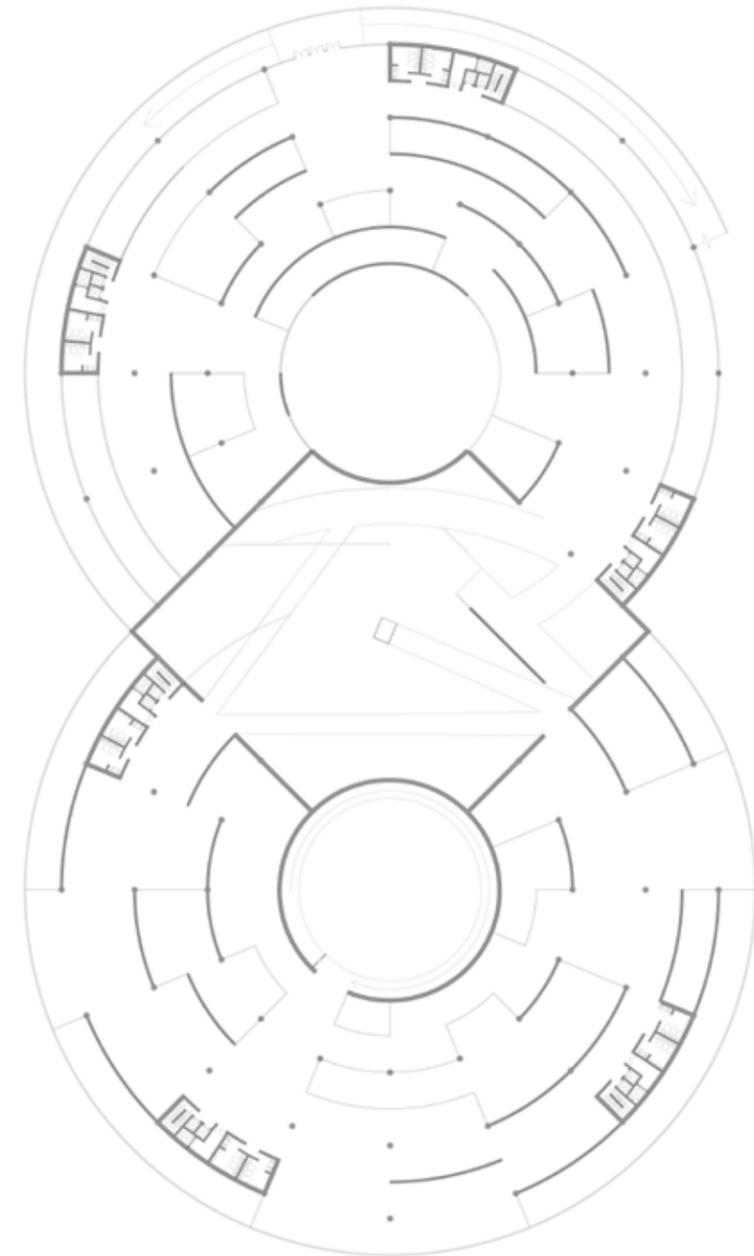
Section Study

For a section unit, there are several possible ways. The research is carried out in a dynamic, rotatable way, looking for mobility, and a fan-shaped combination, which leads to many possibilities



1st Floor Plan

As the entrance space of the building, there are many unit Spaces such as reception, storage, leisure and so on. They are fan-shaped Spaces that revolve around two circular centers



3rd Floor Plan

On the third floor of the building, there are various exhibition galleries, while in the central space of the whole building, there are many corridors connecting the two centers of the building.



Facade Display

During the design process, the complexity of the facade becomes more and more interesting as the design depth progresses. Thus, as a dynamic building itself, dynamism can be experienced outside the building.



Section Display

As a large volume building, the complexity of the sections allows the richness of the space to be revealed, and the communication and flow between the layers can be seen from each section.



Gallery Rendering

Located at the entrance space of the building, the sense of continuity and endless space will attract people to explore the narrative. The change from layer to layer also attracts people to look up and down.



Central Space Gallery

The corridor space in the middle space leads people to various parts of the building, facilitating communication and adding interest. The separation between walls also divides the different public Spaces.

TRUNCATED

Date: Dec, 2021
Location: Detroit, MI
Instructor: Ian Donaldson
Type: Library /Renovation
Solo Work



DPL is the Detroit Public Library, located in downtown Detroit. As an old industrial city, the revitalization of the city has become a priority for the local government, and the renovation of the DPL can contribute to the revitalization of the city. The DPL block is very solid, it can give some sense of power. Symmetrical distribution on both sides can also give people enough of a sense of ritual. The project transforms the old building through volume logic, addition and subtraction, and the new library will bring an entirely new feeling to the city silhouette



Typology Study

According to the original building blocks, different combinations of blocks are studied to form courtyard with different sizes. Finally, the desired blocks are determined by studying the possible functions and streamlines.



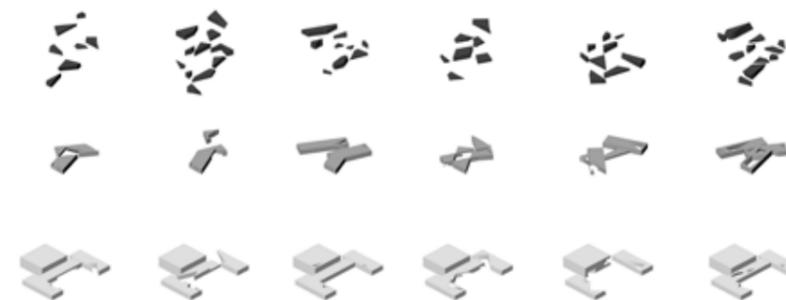
Section Model

A medium-volume building requires reasonable traffic space support, and with Sparrow's floors, the connection between floors becomes very simple.



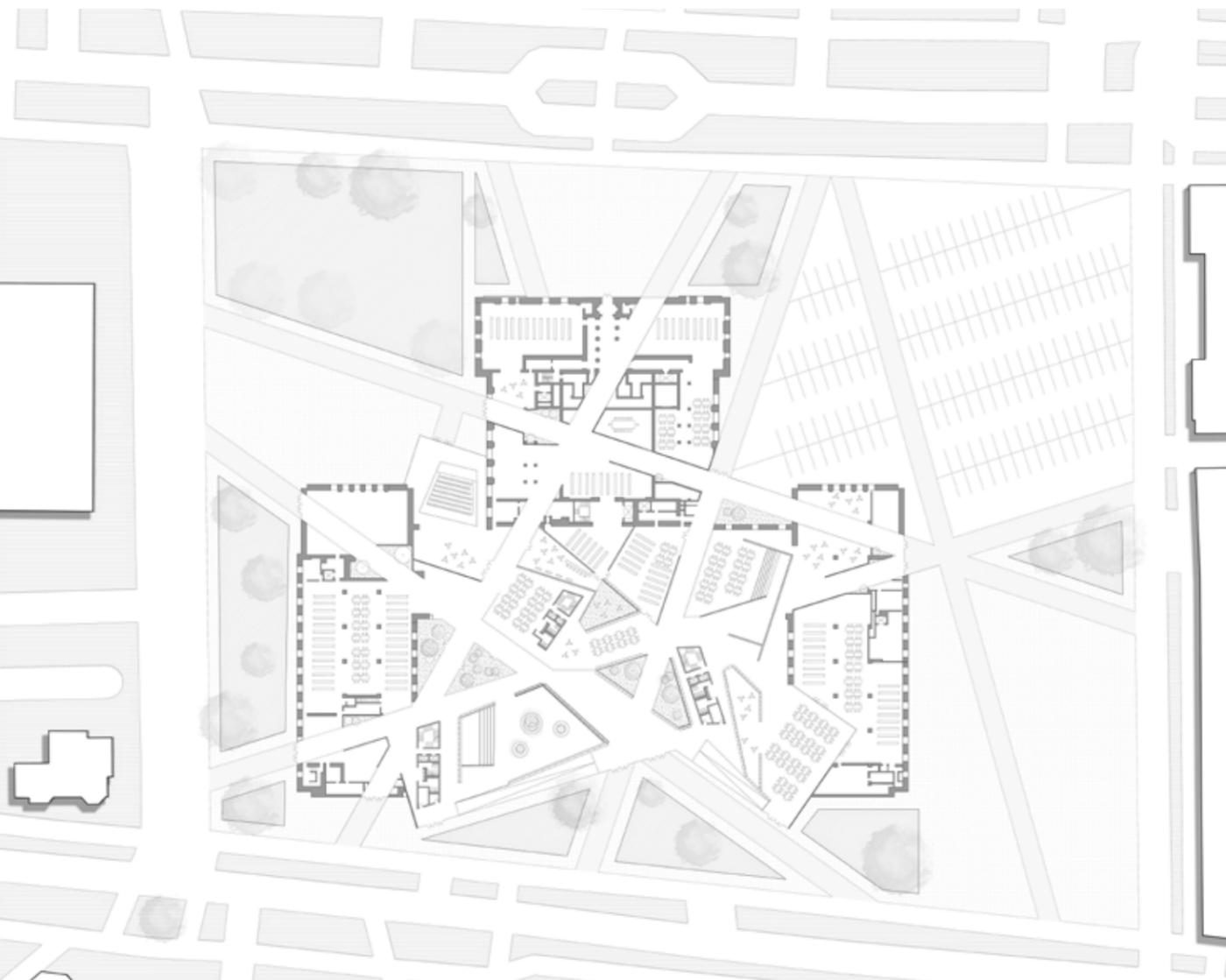
Typology Progress

The selected pattern is studied and gradually evolved into an architectural pattern with the addition of corridors, entrances, stairs, rooms and other elements



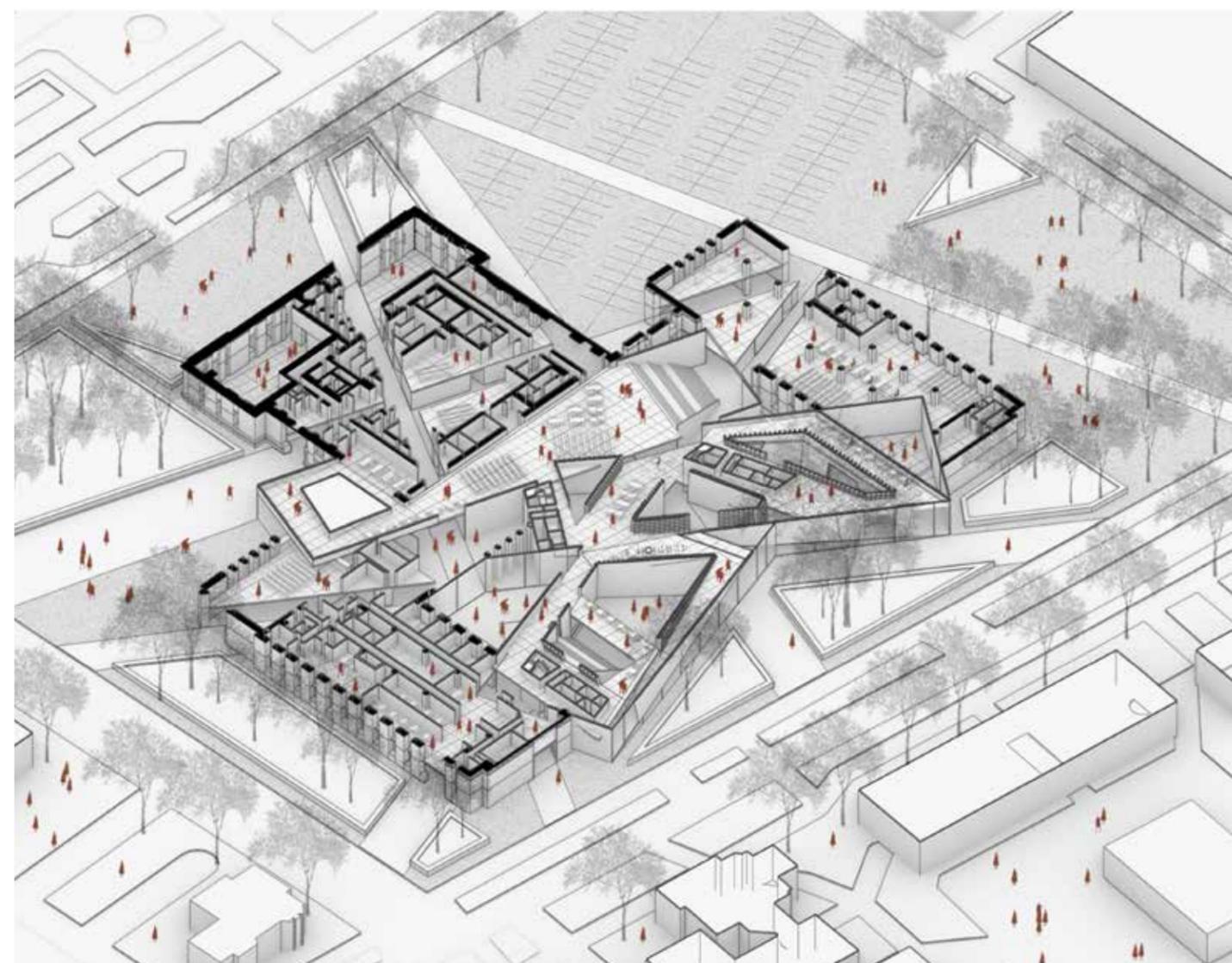
Add and subtract

The addition of addition and subtraction mode makes the appearance of the building varied, and makes some volumes and courtyards gradually clear



1st Floor Plan

The first floor plan gathers the most functions of the whole building, with the majority of public space. Coffee, a small theater, a public stair reading area and some special reading areas throughout the first floor. And the whole internal texture and external landscape route integration, has a close connection



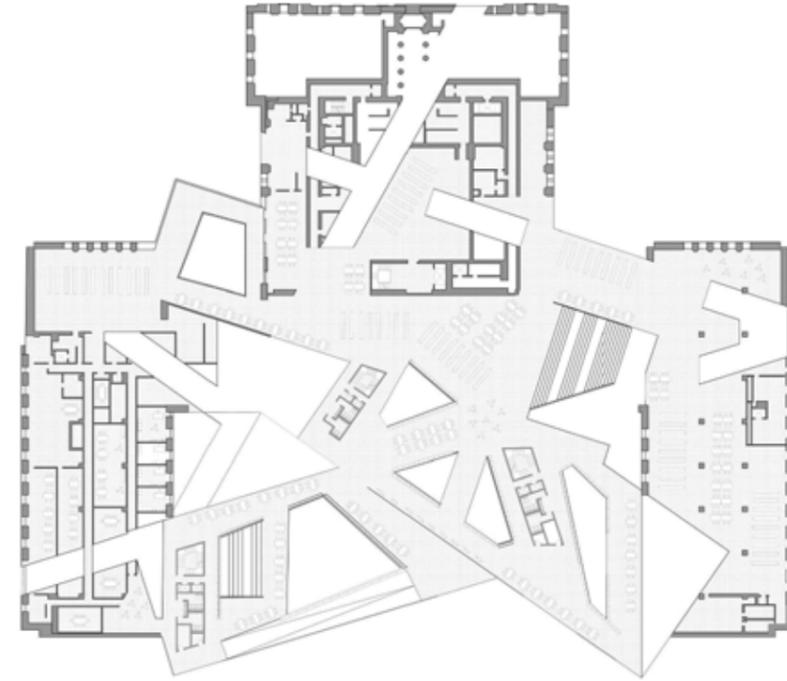
Axon

The next there is the contrast between old and new. The word "truncated" .to illustrate there is possibly reduce some native acute angle space. Like Cutting a hole in the corner or making the bookshelf of the wall or some stairs of the angle.



Courtyard Inside

One in courtyard one outside block and courtyard. Those all same with the dpl original space form. In the block space people stopped in the extension space people keep going.



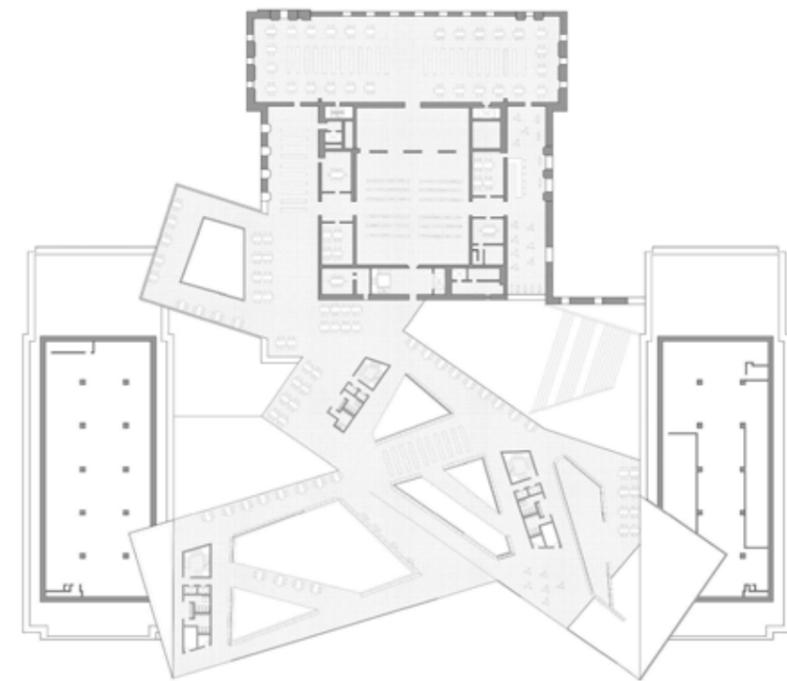
2nd Floor Plan

On the second floor of the whole building, the left wing part of the old building on this floor is distributed with the office work of the staff. Besides, public reading areas are more common.



Courtyard Outside

This rendering to show how the relation shape between them. And make the bookshelf around the block looks like a new inside space.



3rd Floor Plan

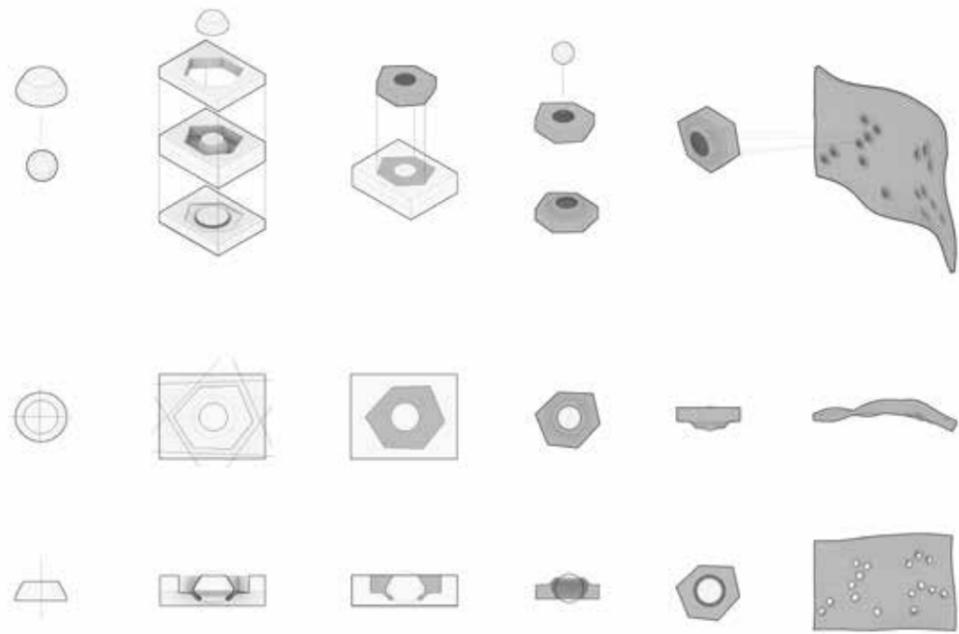
On the third floor, as the two wings are used for mechanical equipment, the usable area of the whole building decreases with the increase of floors. It all looks like a mountain style.



Bone Space

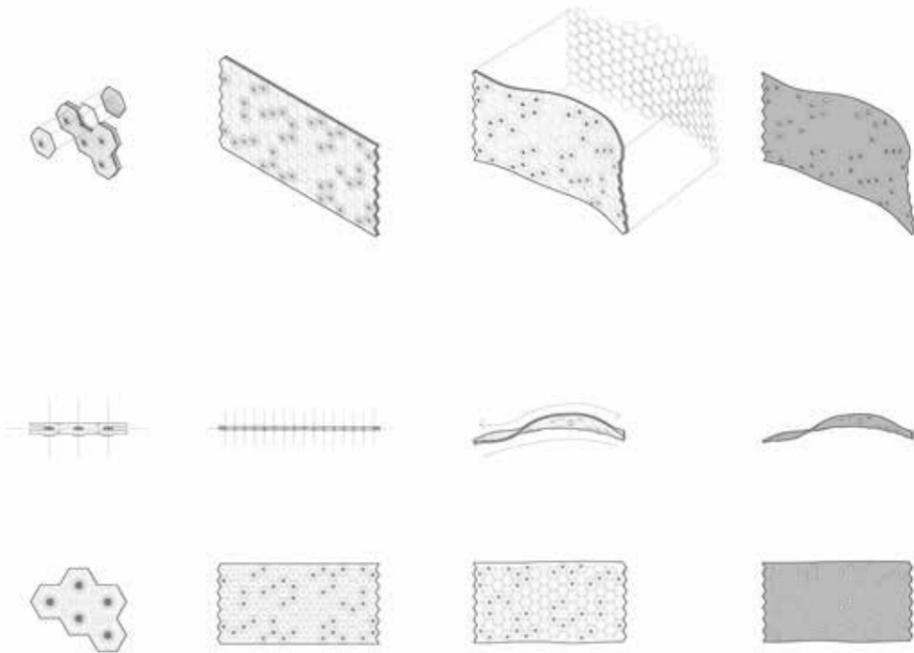
Date: Apr, 2022
Location: Chicago, IL
Instructor: John Ronan
Type: Cemetery /Group Work
Feat. Boxian Zhao & Ziyu Huang

The unclaimed have been forgotten by society. Our project seeks to preserve their memory as unique and important individuals. In the end we are all equal, regardless of our circumstances in life during our material investigations, we discovered that plastic, glass and foam have similar properties and micro-structure and they are easy to be transformed into diverse spaces, which accords to our core value. Then, because it is a cemetery, taking storage as main function, we figure out that we can dive into microscope of the 3 materials to explore more possibilities, because the microstructure is highly efficient in storing their particles. Then we found they are either too repetitious or low space fluidity, But it inspires us to look on the microscope of the bone---the core of our body, the leftover of death, and we are surprised to discover its excellent space fluidity and high diversity.



Urns Study

The study investigated how to construct this bone space. Starting from bottom up, we explored how to make each facet of the interior surface of the catacomb.



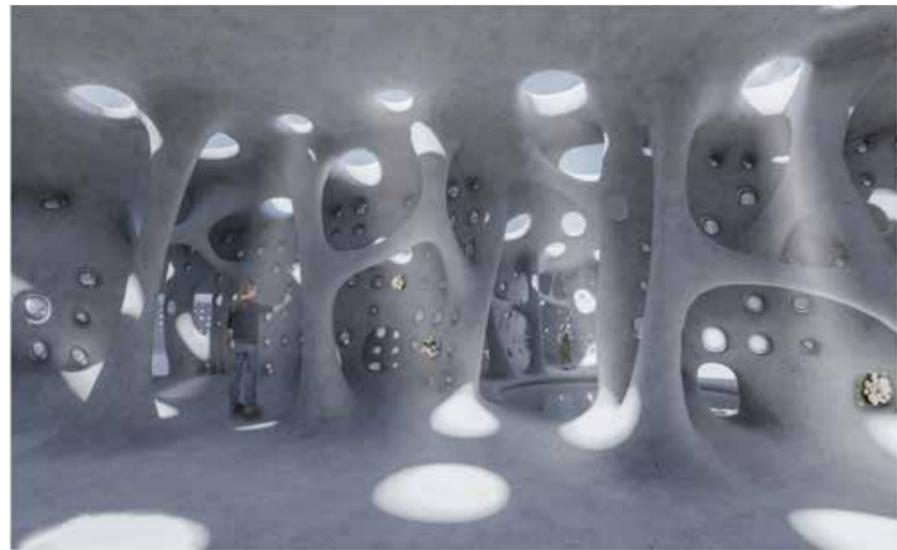
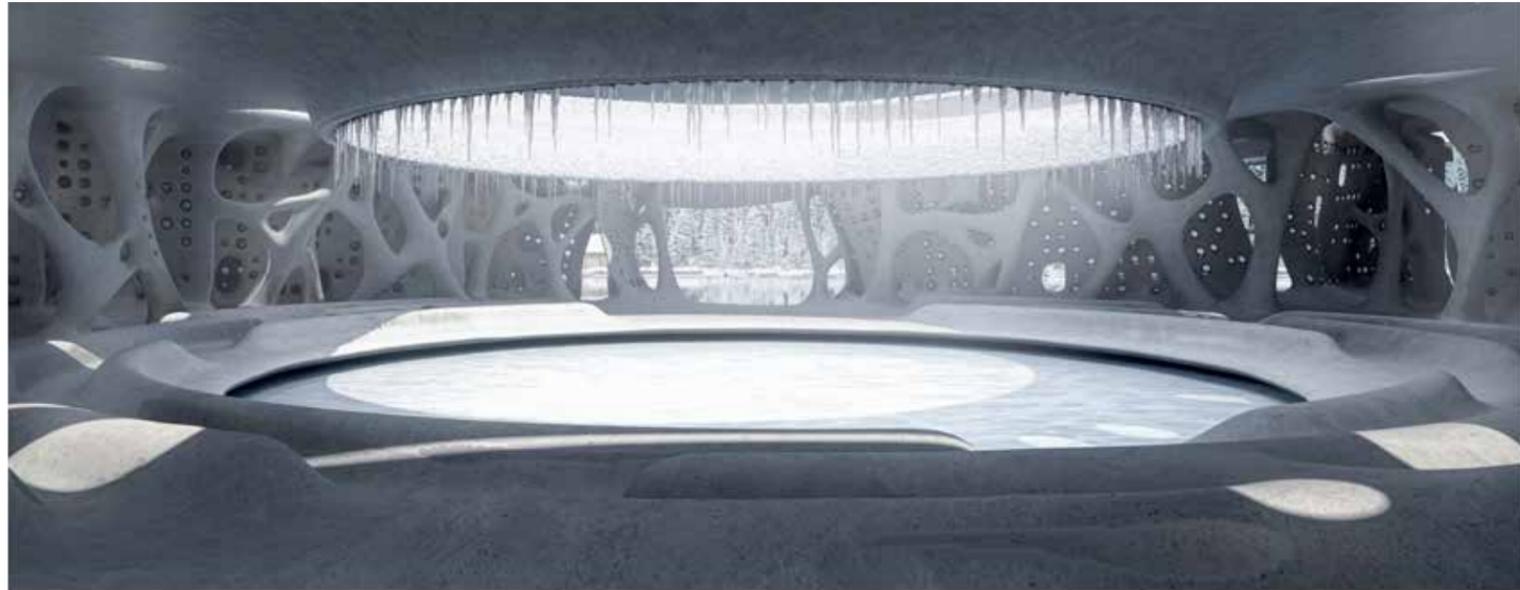
Urns Wall Construction

It chose concrete because its ability to create a continuous surface. Then we extended the individual wall facets it to make the interior surface of the catacomb, a special space for both death and living people.



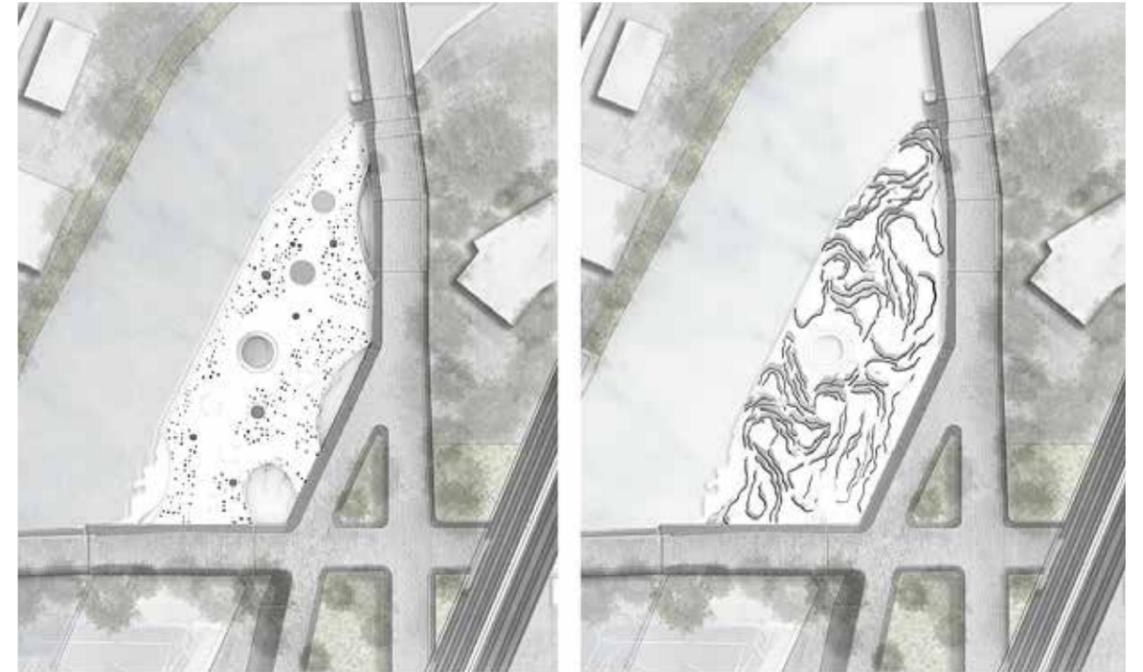
Study Model
Urns Unit & Tree Column & Bone Space





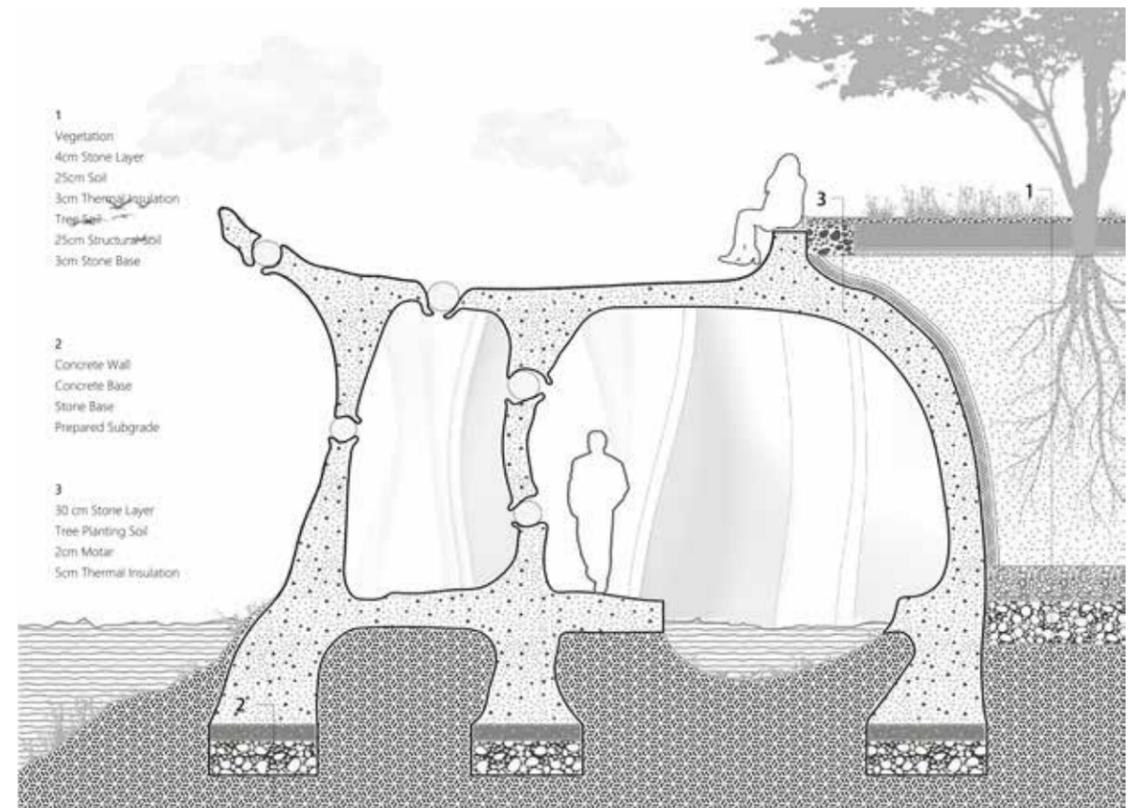
Seasonal Rendering

Time change with trees and sequence of placing urns take each water as center and gradually expand the whole site



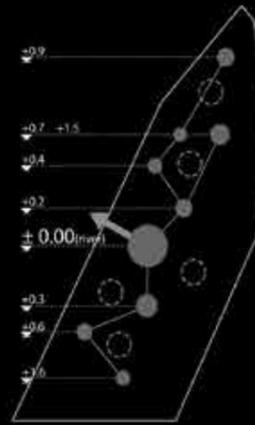
Site Plan

For the site in urban context ,first the whole building of the entrance of roof and ground level, the tree position according to the ramp ratio.



Construction Detail

Disperse the water surrounding the tree column, how they connect with each other and generate wall plan based on the magnetic field lines of each water, the relationship with river



Site Forming

The formation of the site through curved flow forms a free flow, whether at the top or at the bottom of the building.



Site Model

Return to this idea at the end: Our project seeks to preserve their memory as unique and important individuals. In the end we are all equal, regardless of our circumstances in life.

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