

ABSTRACT

Title of Document: INFORMATION HARBOR: THE
TRANSFORMATION OF A HISTORIC
CHINESE VILLAGE

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In modern-day China, policies have been enacted to foster stronger bonds between urban and rural areas in an attempt to bridge the gap in economic and informational inequality. Until now Chinese officials have made very little attempt to salvage decaying rural villages that still have value to society. As a response, how might one apply Critical Regionalist theory to an historic Chinese village and transform it from a bleak village into an energetic and educational tourist destination? Based on the research of traditional Chinese building culture and modern technology integration, a series of interventions are designed to address local dwellers' needs for contemporary information amenities in rural areas while also providing educational and recreational resources for city visitors and maximizing sustainability of the site. Baoshi Village has been chosen as a case study whose principles and strategies could also apply to the villages of similar size and situation throughout China.

INFORMATION HARBOR: THE TRANSFORMATION OF A HISTORIC
CHINESE VILLAGE

By

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Dedication

I would like to dedicate this to my mom. Without her support and encouragement, none of this could have happened.

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Chapter 1: Introduction

"I am not an economist, yet I fully understand that agriculture, peasants and rural area issues are extremely critical in China. Without a well-off rural area, there won't be a well-off nation; without the modernization of rural area, there won't be a modern China." said by Wen Jiabao, prime minister of PRC at the national representative conference in 2005.¹

More than thirty years have passed since the Open Door Policy was enacted in 1987 by Deng Xiaoping, the second most influential political figure after Chairman Mao Zedong. Since then, rapid urbanization and economic growth have taken place in China. Some people have benefitted greatly from the policy and have become wealthy and live comfortably. However, as old social problems are still unsolved, new problems come into being. Owing to the problems left over by history, significant economical differences between urban and rural areas still exist and have been a heated politic issue for years. To facilitate the advancement of society, pre-existing social barriers need to be cleared. Recently policies have been carried out to foster stronger bonds between urban and rural areas and to bridge the gap in economic and information inequality. Sweeping social reform is easier said than done,

¹ People's Daily, "Premier Wen Jiabao's Response to Journalists from China and the World ".

Translated by the Author. <http://www.people.com.cn/GB/paper39/14295/1271829.html>(accessed December 1, 2012)

however, due to the old household registration system. Under this system, people from urban and rural areas have been treated in a totally different way for many decades. Socially and politically, those who are from rural areas struggle to overcome disadvantages such as inequality in education and lack of job opportunities.

To change this situation, citizens in China not only need to change the policy, but also need to change people's view. However, the mindset towards rural area has existed for hundreds of years and is hard to change. Against this discriminatory backdrop, education becomes particularly important.

In addition, the issue of historic building preservation is moving to the forefront of the national agenda as China is trying to become a cultural influence in the world. The indifferent attitude towards historic buildings in the past has led to the incalculable loss of a heritage that carries precious historic information and glamour of the architectural legacies (sites or remains).

As a nation with the world's largest population that struggles with urban overcrowding, designers in China appreciate the advent of modernism led by Le Corbusier. His minimal design aesthetics is the fastest and the most efficient way to solve the dense population problem and let as many citizens as possible to live decently and healthily. However, when the entire city fabric

is comprised of concrete slab buildings, everything starts to look the same, which does not create a satisfying result.

Education inequality is a common occurrence in China, and the lack of higher education in rural areas is quickly becoming the government's chief concern.

Up to now, the best teacher resources have been concentrated entirely in metropolitan areas. However, the advent of modern information technology provides a crucial tool for solving the disparity between rural and urban areas as it virtually eliminates physical distance and provides an opportunity for peasants to talk with intellectuals and let their voices be heard by the decision makers successfully.

As an architecture major, one wonders how best to respond to this rapidly-evolving shift in social awareness and growing desire to preserve important architectural artifacts. In the course of contemplating the need to rehabilitate China's existing architectural wealth, questions have been raised in an attempt to generate an appropriate solution as follows: How can a building be used to educate its occupants? How can the distance between rural inhabitants and city dwellers be minimized? How can city dwellers benefit from visiting rural environments? Conversely, how can villagers benefit from tourists to create a win-win situation?

In an attempt to answer these questions, relevant design theories by published or celebrated authors and architects have been studied, which mainly cover critical regionalism and classical Chinese architecture theory. Additionally, selected relevant precedents from critical regionalist architects will be studied. Based on the analysis of these theories and precedents, relevant principles are extracted as guidance for the design phase. As a culmination of research and design exploration, this thesis proposes a spatial system consisting of an important path, three buildings and the squares which are attached to the buildings. The path is designed to capture the feature elements of both the natural and man-made settings. It begins with the entry of the village, passes through the agriculture fields, historic zone of the village and over the river. Consequently, villagers and visitors can experience a series of different spatial and landscape experience. Three buildings are developed based on the program precedents, which include a community center, dwelling and a library. Each of the building has a square. The design intention of these squares is to introduce the appropriate new activities and reinforce the existing ones.

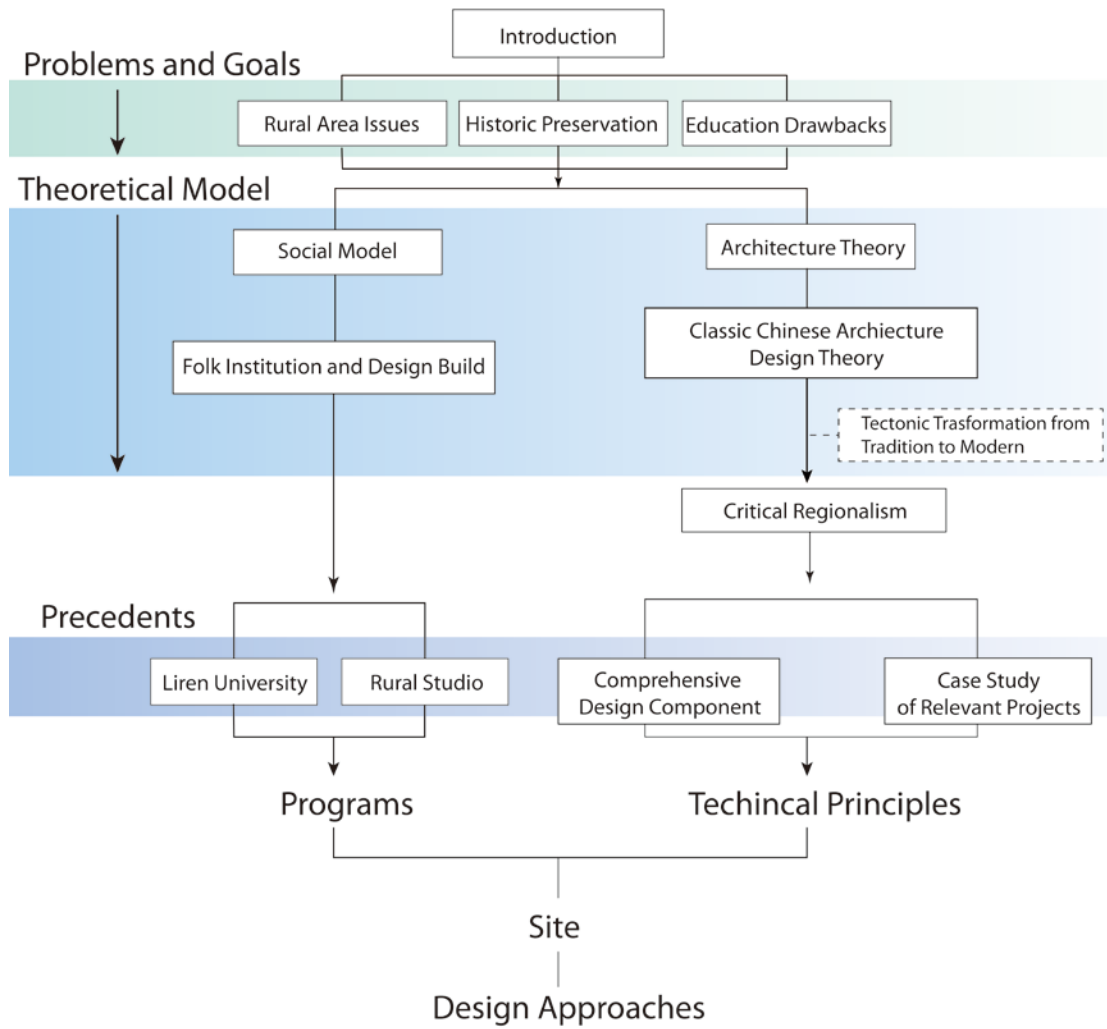


Figure 1.1 Diagram of Thesis Framework (Source: Author)

Chapter 2: Social and Architectural Theory

Introduction

This chapter starts with the introduction of Liren University, which is an important inspiration for the development of this thesis' educational program. Additionally, Auburn University's Rural Studio is included as a reference to obtain social equality in rural China by letting architects or students contribute their efforts to building a more enjoyable living environment for the villagers. Last but not least, a tendency among the younger generation to rely heavily on the internet is discussed to point out the importance of having a different learning experience in rural places.

The phenomenon of Liren University

China is undergoing a tremendous transition for the economic and developing structure to bring a more innovative, culturally distinctive and sustainable future. Under such background, it is safe to say that education can change people's conventionality or stereotype in thinking. Generally, the most important lesson at school is not to fill the students' minds with much knowledge, but to let them be more independent thinkers and be critical about the unhealthy part of existing value system. However, due to the pressure from the value system of the society, some parents impose the pressure on their children. Diploma-orientated education is the trend. Students care more about their scores rather than the quality of education and the practical problems. Many writers stand up to these education flaws and criticize them.



Figure 2.1 Volunteer organizing donated books for Liren University
(Source: Souhu News, <http://roll.sohu.com/20110807/n315648371.shtml>)

Liren University is a folk institution which is held by a non-government organization, which aims at enabling the participants to experience the authentic "University" education in summer. The university is pursuing more free and open form in terms of the advanced folk education. On July 1st, 2011, eighty young people all over China came to a peaceful town called Qingshi. It is a small and remote town in Hubei Province, two and a half hour ride by bus from the capital city, Wuhan. It is eighteen miles away from the closest town, Qichun. The semester only lasts half a month, yet it is considered as a peerless event that ever happens in the country. In China, high school students use to study ten hours a day, seven days a week in most regions for the sake of passing College Entrance Examination, which has been an intimidating gateway for blocking young students from college. Under the pressure of fierce competition, all parents are involved more or less in this competition and take serious attitudes for their children's grade. They wait in a long line out of the school gate to send children dinners in order to save their time for

study during the night session at school. Some critics compare high school lives to those in prison other than at schools, it is more mentally confined because time is spent to learn the same knowledge and get the same answer on the examination sheet. Independent thinking, learning process and personal interests are less important compared to the scores of the final examination. Based on the education phenomenon described above, Liren University has successfully attracted the public attention immediately.²

In the interview with Li Yingqiang, the founder of Liren University, he reveals the intention of the program is to explore a new mode of operating the university with no grand buildings and fixed teachers but a new way of learning. All the teachers are volunteers and all the students are free to choose their research project.

The teachers at Liren University are either from famous universities or public interests personage in China. To name but a few, the temporary faculty for the first summer school included Liu Yu (Associate Professor at Tsinghua University), Zhang Jian (Teacher at Peking University), Ren Yue (Associate Professor at Renmin University of China). For each summer school, each teacher will prepare for two lectures for their students and seminars are followed up with each lecture. This special education has brought the nation-

² Guo Rui, "Rural man opens library for a better future." China Daily, http://usa.chinadaily.com.cn/epaper/2011-03/31/content_12255217.htm (accessed December 5, 2012)

wide celebrities closer to their funs and it serves as a great way for education. Consequently, the door to the students' wisdom was opened and the mode of creative thinking was enlightened as well. The plan for the enrollment was 30 to 40 high school graduates and 20 to 30 college students in 2011.³

The Traditional Design Theory in China

Being critical to the first generation of new architects in China, who tried to cover the modern architecture with traditional appearance, Yunhe Li, in his book *Design Theory of Chinese Classical Architecture* concluded, "The past used to tell us, to inherit the tradition for the tradition's sake is a failure experience, whereas to be innovative without the tradition is also blind. Architecture has its common laws of development, so does Chinese architecture. Time will always be a determinant for the form and contents. The past that tells us the culture and arts from a great time will naturally express the great character of its time. Every era has its language of arts, and the conflicts of "old" and "new" always exists. They are always struggling with one another."⁴

³ Fu Jian, "Liren University: A Folk Institution", <http://roll.sohu.com/20110807/n315648371.shtml> (accessed December 5, 2012)

⁴ Yunhe, Li, *Cathay's Idea: Design Theory of Chinese Classical Architecture* (Tianjin: Tianjin University Press, 2005), 446-447.

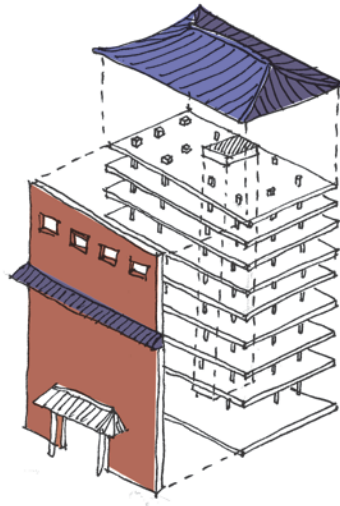


Figure 2.2 Old Way of Inheriting Traditional Chinese Building (Source: Author)

As the economy grows for the past few years, the real estate industry has developed rapidly. Having enough monotonous modern slab buildings, clients and architects are finding more spiritual meanings in Architecture, Thus, a consciousness of establishing cultural identity has been awakened. Recently, a number of architects emerge to promote the traditional value of culture such as the new Architectural Pritzker winner Wang Shu. The precedents of how to transform the traditional form into the new language of modern architecture will be seen in the fifth chapter.

Rural Studio

Samuel Mockbee has made a great comment on the article entitled *The Rural Studio*. "Architects are by nature pursuit leaders and teachers. If architecture is going to inspire a community, or stimulate the status quo into making responsible environmental and social structural changes now and in the future,

it will take what I call the "subversive leadership" of academicians and practitioners to remind the student of architecture that theory and practice are not only interwoven with one's culture but with the responsibility of shaping the environment, of breaking up social complacency, and of challenging the power of the status quo. " ⁵ To summarize this discourse and extract the implication, challenging the status quo of Baoshi Village and inspiring the community to create a more energetic and well-preserved historic place will be the main purpose of this thesis. As Samuel Mockbee puts it in his book, Architects are given a gift of second sight and when we see something that others can't, we should act, and we shouldn't wait for decisions to be made by politicians or multinational corporations. Architects should always be in the initial critical decision-making position in order to challenge the power of the status quo.

Based on the theories that have been discussed in the former chapter, part of the program of this thesis will be the architecture students design/build workshop. Architecture students from the adjacent provinces will come here.

Mockbee mentioned that how many percentages of the poor consist of the majority of the country. This is especially true in China. So architecture students should learn from this workshop to gain a responsibility to serve the

⁵ A. Krista Sykes, ed., *Construction a New Agenda: Architectural Theory 1993-2009*, (New York: Princeton Architectural Press, 2010), 108

majority of people and the community. Also, China is well known for its delicate hand craftiness for thousands of years. Yet with the past few years of soaring development of the real-estate in urban areas, architecture students in China are trained to design fast with computer applications rather than design with rich details.

Internet, a Double-edged Sword

In 2009, an English composition examination was held in China, in which the students were required to write some implication of the comic drawing which illustrated a group of people busy doing things in different rooms adjacent to one another. Thanks to the internet, people lost the physical communication with each other even if they are sitting in the rooms that are next to each other. The point being made here is not to deny the benefits of internet technology. However, there are a large number of young people in China, not only teenagers, but also college students who are addicted to the internet world. This is why people will see internet bars in every city full of young people even until midnight. There is a tendency that young people are spending more and more time on internet. As a result, their kinesthetic is weakened. Some great author believes that the greatest lesson learned from life is by no means easy. In other words, simply by clicking the mouse and staying in one position in front of the internet could bring nobody the true lesson of life. Then is knowledge more important than practice? For those who stay constantly in the

virtual world, is it out of morality or courage? To answer these questions, the ideal means of the education or the ultimate education target need further discussion in this thesis.

Conclusion

Having discussed about the social phenomena and architectural theory, an overall idea about the program and its architectural form has been set the tone, which is to bring education program, architecture students and young students from Liren University together to collaborate with local villagers to reshape both the physical and spiritual environment in rural places.

Chapter 3: Site

Introduction

This chapter discusses the site selection principles based on the general situation of the site such as region location, climate, topography, transportation and built environment analysis.

Site Selection

Based on the social trends and problems described above, this thesis, on one hand, is trying to arouse people's awareness of historic preservation. On the other hand, it is trying to help villagers to get out of poverty and seek for a more promising future. Therefore, the scope of site selection usually focuses on rural villages with historic buildings. Meanwhile, the scope can be narrowed down to the little known historic villages other than those in a more prosperous and famous regions around the eastern coast of China. Generally, these target villages can be found in the central regions of China, where the mountain terrain become a barrier for development yet also slows down the urbanization process which usually leads to demolition of historic buildings. Moreover, the site that is close to a concrete road is preferred so that people from cities can easily get access to. A good view with natural resources such as river, mountains and forests will be also appreciated.

Site Location

Baoshi Village is located in Hubei Province, China. It is a small historic village which consists of 30 historic buildings from the Ming and the Qing

Dynasties. The villagers were all blood lineage at the first period of the settlement. It has gone through several important historic changes during the past 400 years. The village was entitled the historic preservation village at province level in 2004. As for the geographic aspect, Baoshi Village's Northern Latitude is 35°; East Longitude: 114°; Height above sea level: 95m (285).

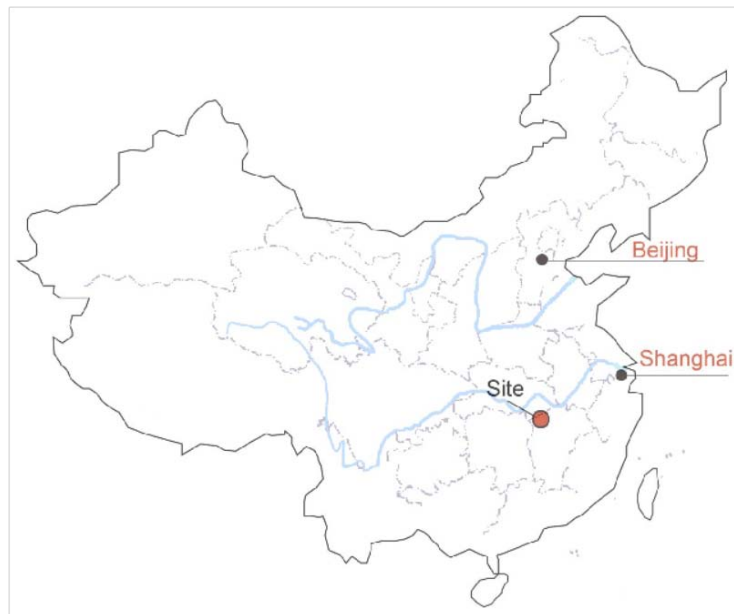


Figure 3.1 Location of Baoshi Village in China

(Source: Author)

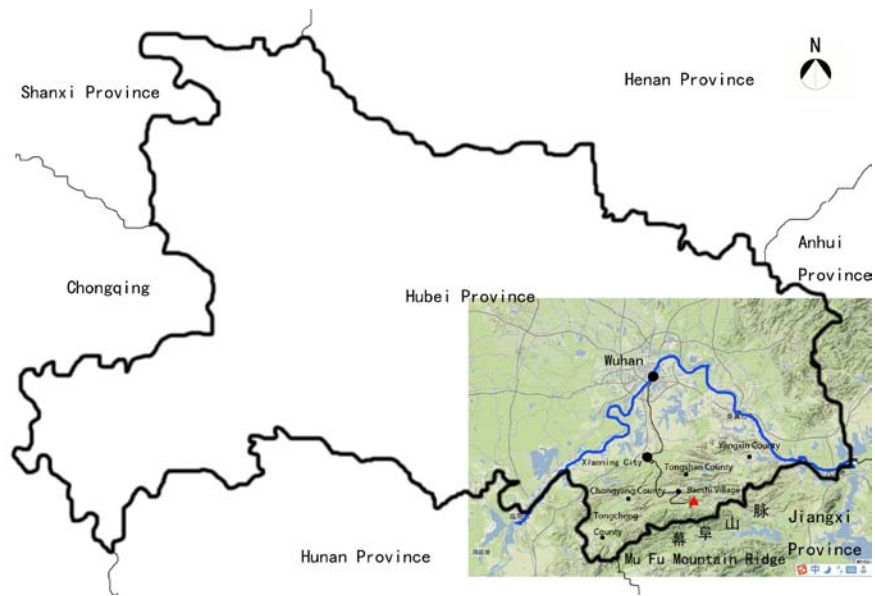


Figure 3.3 Topography in the Region (Source: Google Earth)



Figure 3.4 Surrounding Topography of Baoshi Village (Source: Diagram by Author based on google earth map)



Figure 3.5 Aerial view of Baoshi village and other adjacent villages and the town (Source: Author)

Climate

It is in north subtropical monsoon climate zone, presenting a typical humid temperate condition with abundant precipitation. With four distinct seasons, Baoshi Village enjoys the enchanting scenery and plenty of sunshine. The yearly average temperature is 47~55(F). Sunshine rate is about 38%. Yearly sunshine hour is 1692 hours. Precipitation: 1500 mm yearly average; 75% happens in spring and summer; rainstorm often happens from April to September, especially in June and July.

As it is shown in the diagram below, Baoshi village belongs to hot summer and cold winter zone.



Figure 3.6 The climate zones for building thermal design in China (Source: Assessing the natural ventilation cooling potential of office buildings in different climate zones in China, Runming Yao, Baizhan Li, Koen Steemers, Alan Short, Renewable Energy, Volume 34, Issue 12, December 2009. Pages 2679-2705)

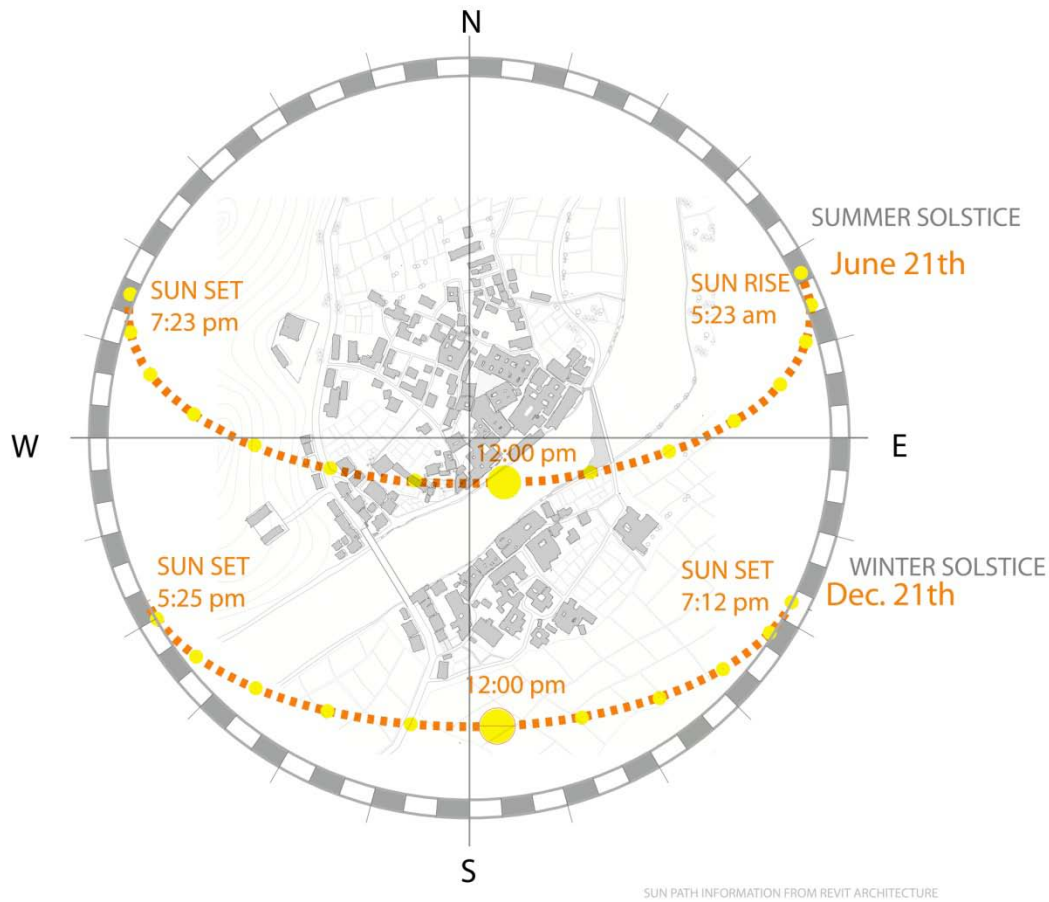


Figure 3.7 Sun path diagram of Baoshi Village (Source: Author based on information from Revit Architecture)

Prior Planning and Buildings

The prior planning of the village follows the rule of traditional Chinese site selection and planning layout, which is also known as Fengshui or geomancy (Figure 3.8). The building prototype can be divided into three different types according to the major historic periods. The most valuable building prototype is from Ming and Qing Dynasty. This type inherited famous vernacular residential type in Anhui Province yet adapted to the local condition.



Figure 3.8 Fengshui Analysis of Baoshi village (Source: Author based on information from genealogy of Shu family)

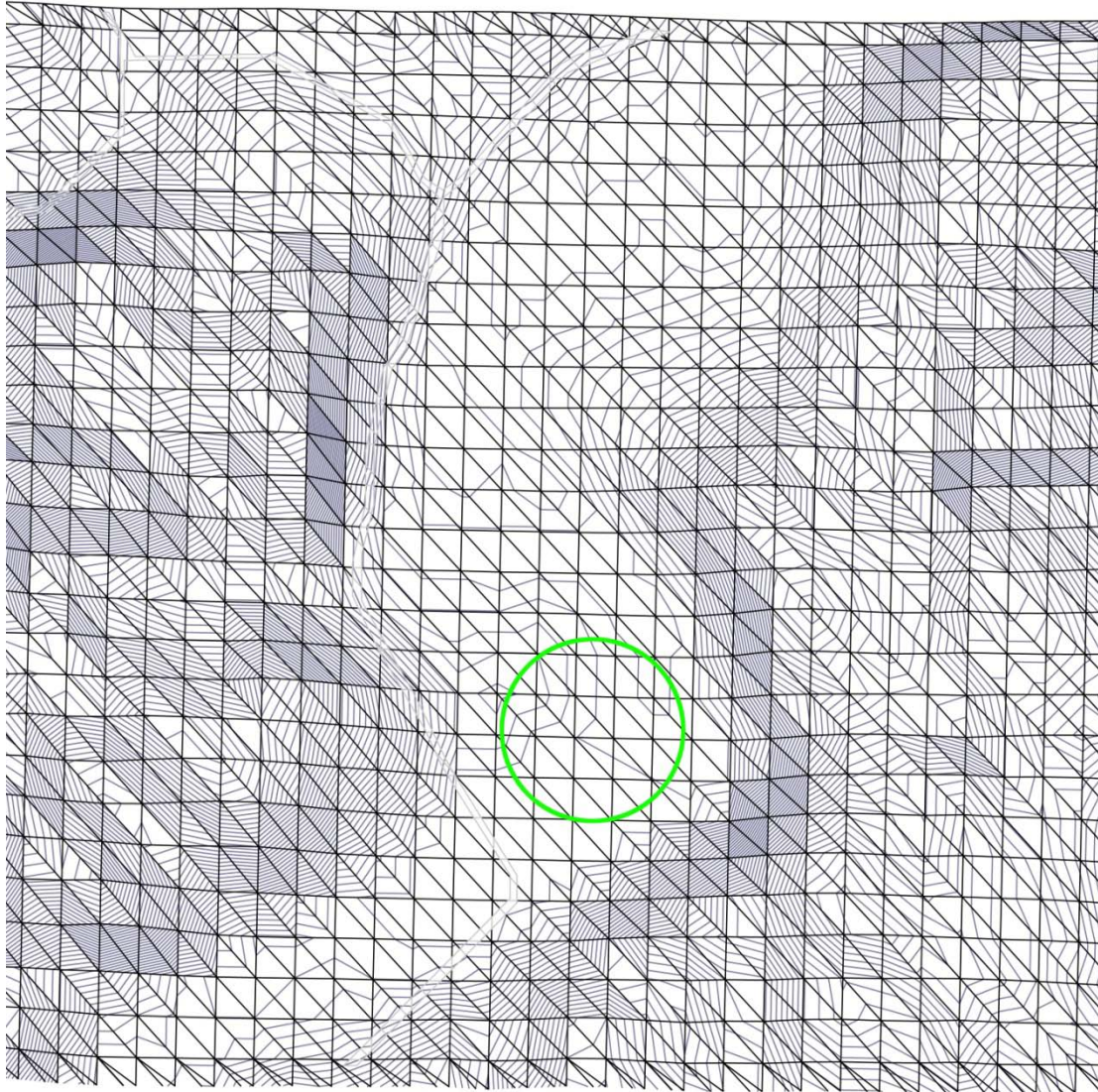


Figure 3.9 Topography of Baoshi Village (Source: Author based on Geo-location in Google Sketchup.)

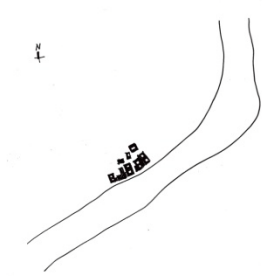
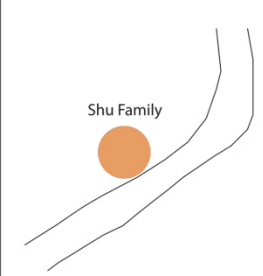

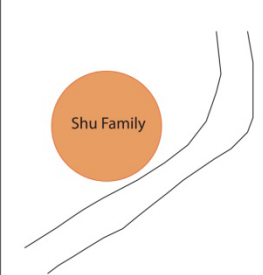

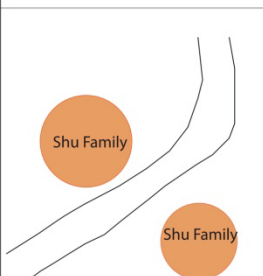

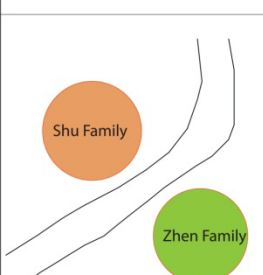
Figure Ground Diagrams	Building and Infrastructure Development	Historic Periods and Regimes	Demographic and Family Type
	First settlement by a couple of families on the northern side of river.	1400-1644 Ming Dynasty	
	Establishment of Ci Tang (Ancestor Hall, shown in red) More family houses were built around it.	1644-1912 Qing Dynasty	
	Northern part of village had been fully developed. New houses were built in southern part.	1644-1912 Qing Dynasty	
	Density starts to disperse to the perimeter of the village with new slab buildings.	1912-1949- Present, Peoples Republic of China	

Figure 3.10 The growth of the village (Source: Author)

Site Context and Existing Conditions

The village is one mile away from its upper administrative town. A river coming from northwest bisects the village into two parts. A bridge which was built in 1990s connected the two parts mainly for logistic reason. It also leads to the famous mountain resort in Hubei Province. Building types in Baoshi village are housing, barns, ancestral halls, shops, industrial factories and a memorial arch.



Figure 3.11 Figure ground of Baoshi village (Source: Diagram by author based on the drawing from Huazhong University of Science and Technology)



Figure 3.12 Land use diagram of Baoshi village (Source: Source: Diagram by author based on the drawing from Huazhong University of Science and Technology)



Figure 3.13 Site section from north to south (Source: Source: Diagram by author based on the drawing from Huazhong University of Science and Technology)

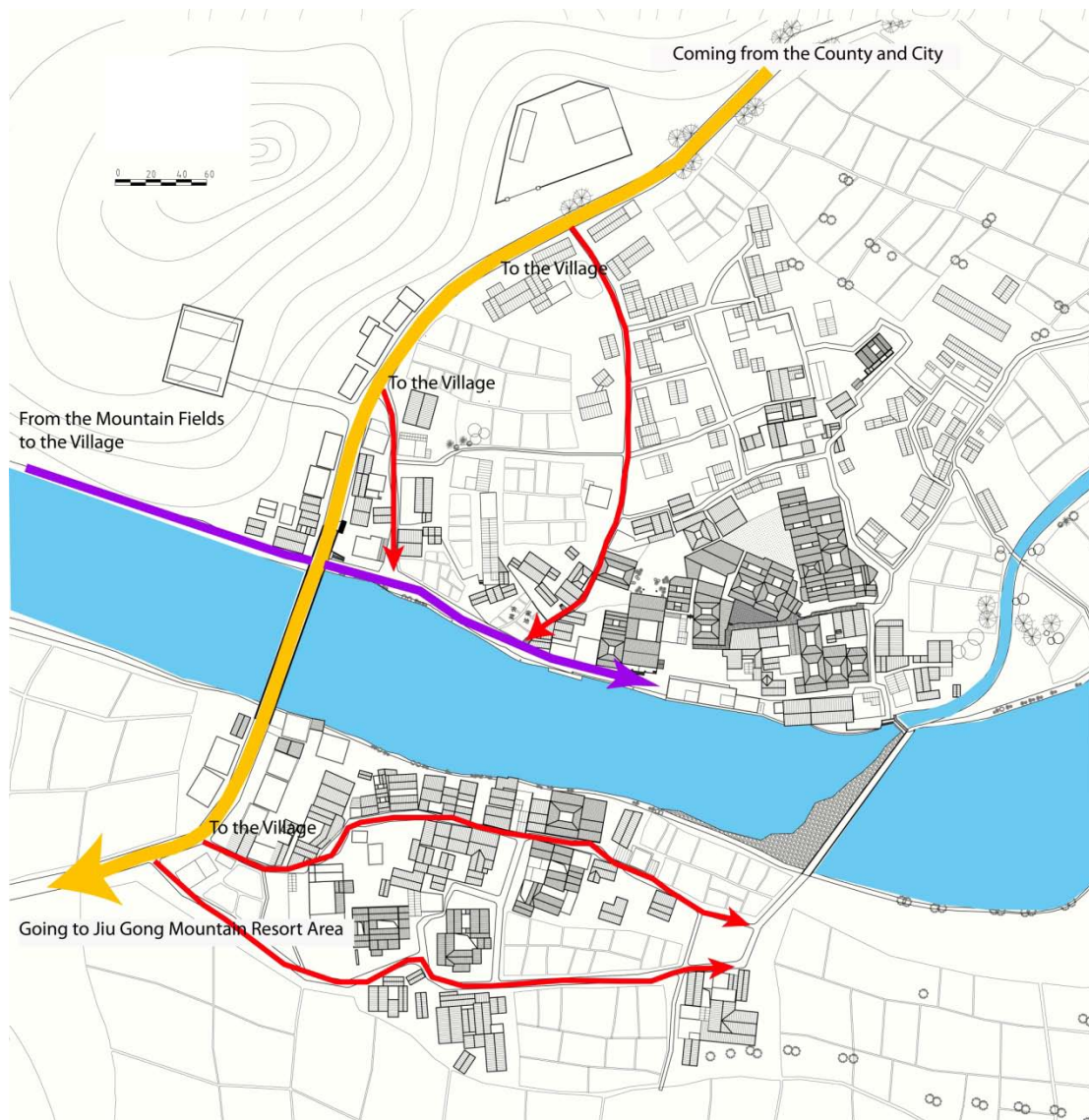


Figure 3.14 Circulation in Baoshi village (Source: Source: Diagram by author based on the drawing from Huazhong University of Science and Technology)



Figure 3.15 Two ways of going across the river (Source: Source: Diagram by author based on the drawing from Huazhong University of Science and Technology)

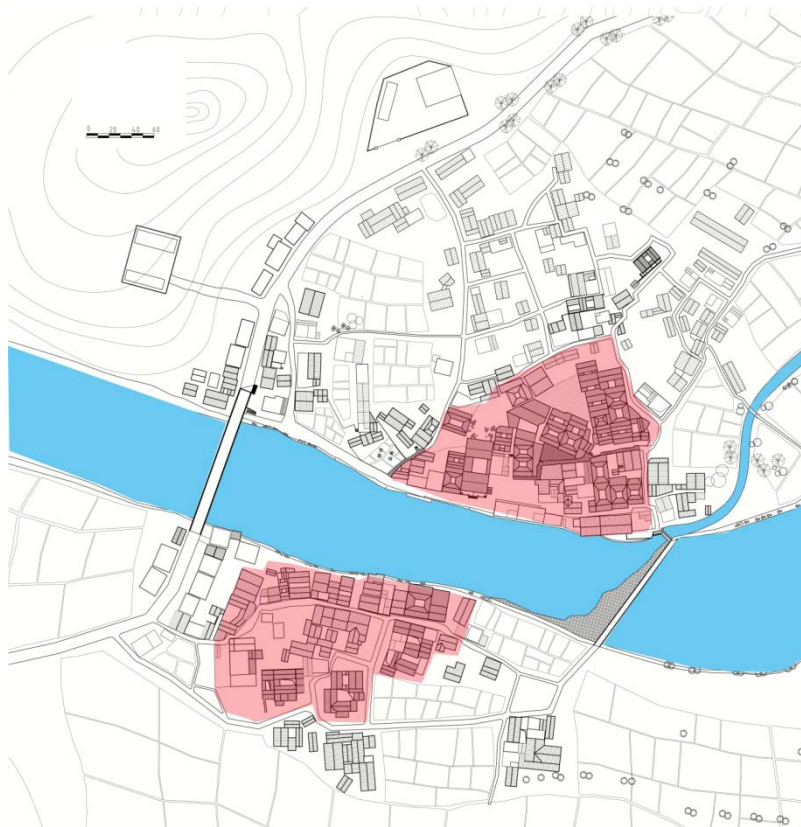


Figure 3.16 Historic zones of Baoshi village (Source: Source: Diagram by author based on the drawing from Huazhong University of Science and Technology)

Unconscious Building Renewal

The diagram below suggests the family structure has changed through time and the ritual space is gradually vanishing.

In the past, large families with several generations lived together and gathered around the courtyards. Yet the new housing being built is gradually losing that pattern of life.

A Progression of Unconscious Building Renewal

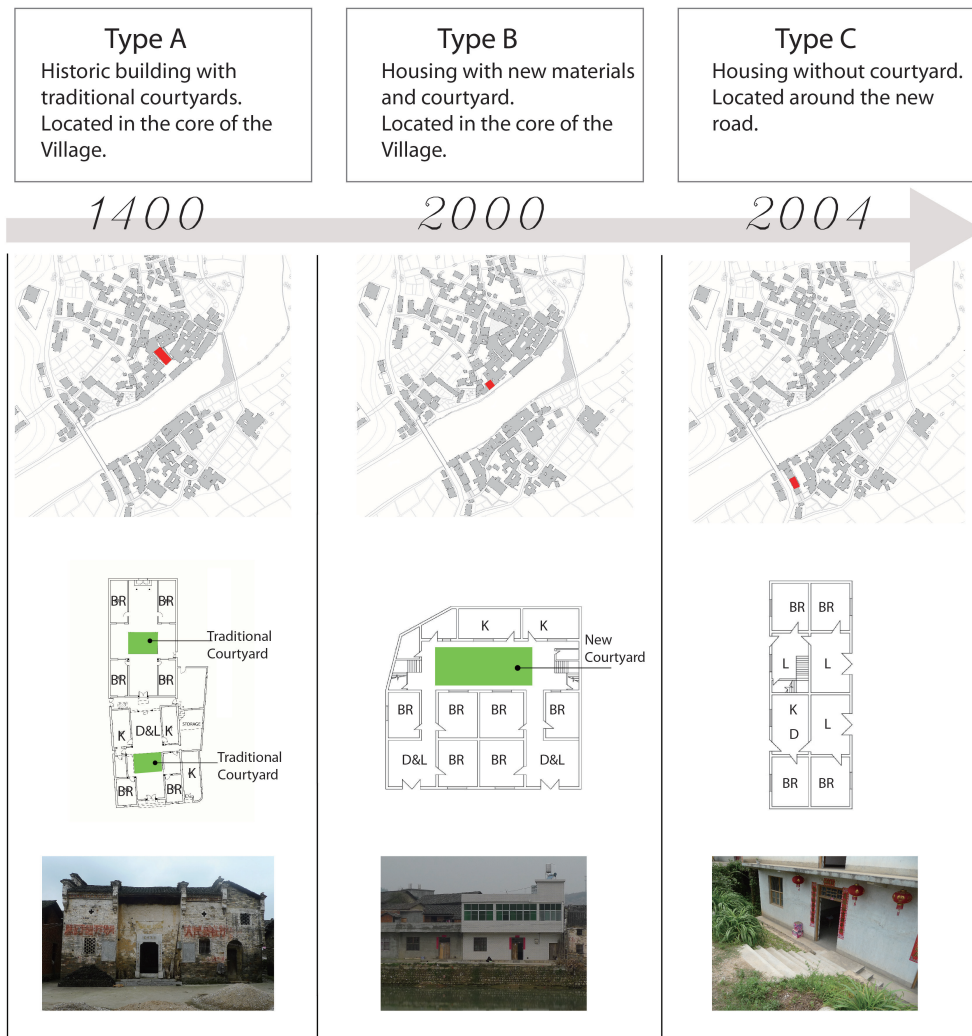


Figure 3.17 A progression of unconscious building renewal (Source: Author)

Population

By 2003, there were 345 households. The population was 1408. Each household had 4.08 members. The actual labor force is 522. The male accounted for 320 whereas the female accounted for 202.

SWOT Analysis

Strength

The village is close to the newly-built road for people from the cities on their way to the famous Resort area in Jiugong Mountain. The whole village has a strong social bond which not only provides the place with a safe and convenient environment, but picturesque natural scenery.

Weakness

It is neither a convenient nor pleasant experience for the villagers from northern part to get to the southern part, for they need to go a long way to the new bridge which is designed mainly for automobiles. Original townscape along the waterfront for the northern part is gradually losing its quality. People take no notice of the facade and the details when they built the new slab buildings which weaken the characteristics of the site.

Opportunity

Several pieces of land around the most important social space are left unused. Some old buildings, which could be the ideal place for the intervention of the new project, have been torn down by the villagers. The village is surrounded by agricultural fields. Students from cities can gain more understanding about agriculture.

Threat

Every five years, there will be a relatively big flood. The careless attitude towards trash-handling endangers the natural environment.



Figure 3.18 Aerial View of Baoshi Village (Source: Author)



Figure 3.19 Site elevation of Baoshi village from the waterfront (Source: National Architecture Center in Huazhong University of Science and Technology)

The following diagram on the left shows the distance from the central point of the village to the edge, which is 800'. The diagram on the right shows the size of the Architecture building on the site to provide a better idea of how big the site is.



Figure 3.20 1/4 Mile Coverage on Site and Site Comparison between Baoshi Village and University of Maryland (Source: Author)

Conclusion

Based on the investigation and analysis of the site, the design should be done by making good use of the site advantages to solve the site problems. Since there are dramatic views along the waterfront from the north overlooking the south, project locations could consider in the northern part of the village. Meanwhile, connecting the two parts of the village is also a reasonable solution.

Chapter 4: Program and Technical Strategies

Introduction

This chapter introduces the story of a new Baoshi village based on the proposed programs and user groups. It also touches on the local design strategies and principles that could be applied to the next design phase.

Program Narrative

Every summer, the School of Architecture in Huazhong Univerisity of Science and Technology will have junior students surveying folk architecture in historic villages in Hubei Province initiated by its National Architecture Research Center. The surveying lasts two weeks with students often living in villagers' home and share meals with them. It is a way of realizing social practice, not only for recording the historic buildings' information, but also for learning the life of people who live in rural areas, where poverty happens. The speed of decaying of historic buildings and tearing down by villagers due to safety concerns is faster than that of actual reaction or action of preservation from relative agencies and local government in charge of ancient architecture preservation.

Instead of waiting long for the committee of historic preservation or government's response, National Architecture Research Center at the School of Architecture has made decisions that every summer the school will send two professors and some graduates and junior students to Baoshi Village,

where professors will make the design or to take on the building projects on the historic site. They volunteer to give the villagers the design guidance, tell them how to build a historic site and deliver the historic preservation service. Graduates and juniors make great contributions in the housing project as well. Each year they will devote their talents for one housing project of a family in the village. The family who will receive this design is selected by the village committee based on needs. Junior students are highly selected based on their desire for design build project and their craftiness talents at school work. By hearing the news of Liren University, National Architecture Research Center sees the opportunities to collaborate with them to establish a community center for the local villagers which will mainly focus on education program and also accommodate community activities and Design/Build studio space. The founder of Liren University is pleased to know the plan and decide to spare part of the funds and donation they collected to pay 60% the cost of this new project. National Architecture Research Center is also able to pay 20% of the cost using the Folk Architecture Research Funds they have applied and received in 2010 provided by National Advanced Education Committee. The rest of 20% will be paid by the local government of Tongshan County as a support for the regional development. By seeing the promising future of this project and its energy to revitalize the historic village, the parties that have been involved decide to include temporary hostel as part of its program to accommodate the potential visitors. The tourists from Wuhan and other adjacent cities in the past always went past the village as the main road to the

famous Jiugong Mountain Resort is adjacent to the village. However, once this project is launched and being exposed to the public through press, the tourists have more reasons to stay in the village for a night or two during weekends. They are welcome to join the activities and seeing the exhibitions held by National Architecture Research Center and Liren University. The visitors are also encouraged to spread the word to their friends and relatives about this project and its social implication of the program. They will pay for the living and the meals provided by the villagers at a reasonable price. The profits which are obtained from the buildings make will be managed by Liren Univeristy, 50% of which will be spent on historic building preservation carried out by National Architecture Research Center. 20% of the profits will pay for the facility and maintenance that the building needs. The other 30% will go to Liren University funds to sustain its existence.

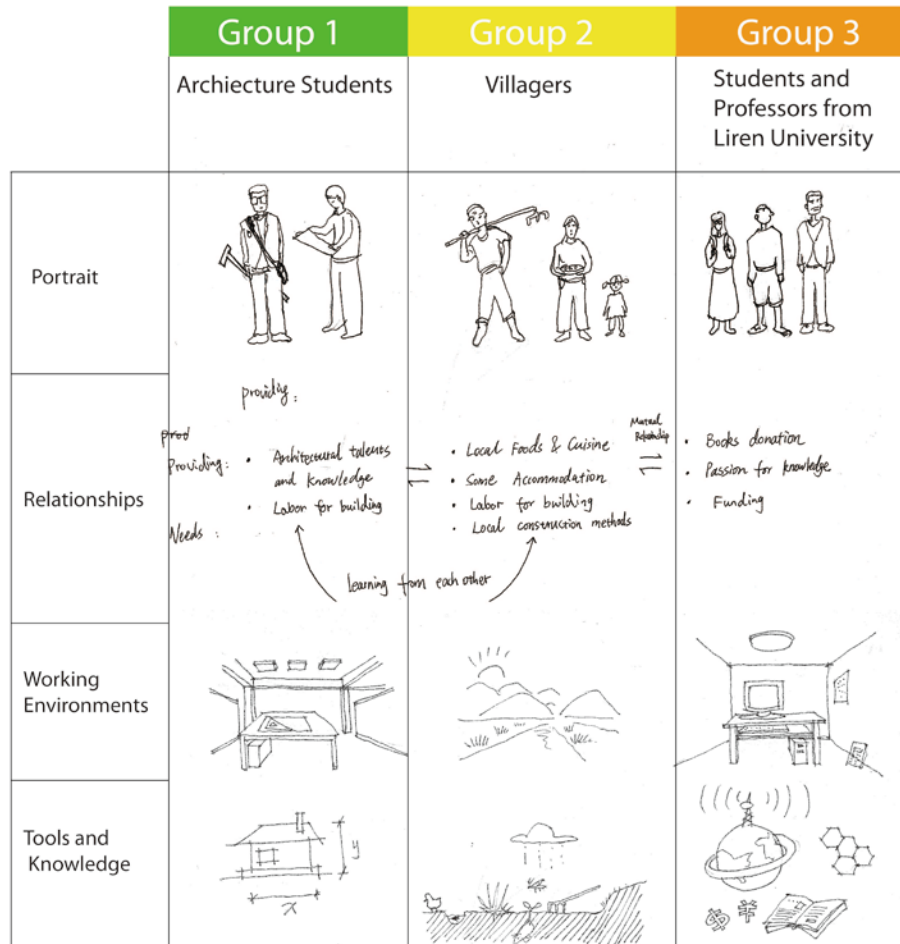


Figure 4.1 User Group Diagram (Source: Author)

Education Programs:

Classrooms 1800 SF

Classrooms have blackboards, multiple media device and tables. Tables are light-weight and can be easily arranged in different ways to cater for different teaching styles. Adult Training program for the villagers will have classes there regularly. Liren University will use the classrooms in summer times. One classroom could become the lecture room to accommodate small presentations and lectures by volunteer professors.

Library 900 SF

As the library is the primary goal of the founder of Liren University, the community center here is providing a small library to make good use of books that have been donated by the society. Also, architecture students and all the other students and visitors are welcome to have their books put in the communal space in the library to share and compare notes with each other.

Studio 900 SF

Studio space is for architecture students who are participants of Design/Build project. It includes the basic furniture for the specialty such as drawing tables, shared modeling space, and storage space for drawings and models.

Printing Room 350 SF

Since the village is far from the modernized condition, it does not have any printers. Most villagers never use a printer before. However, as the thesis intention is to modernize the village and let villagers have options to be accessible to modern office facility, a printing room will be helpful. Besides,

students and the tourists can use it as well. Although architecture students are encouraged to do more hand drawings, yet it is helpful to print the digital drawings out and draw overlay on it sometimes. Due to the budget, only small printer, scanner could be affordable. It has one small printer and scanner. The printer can print the size of A3 (11" x 17") sheet of paper to the maximum. The scanner can scan A3 size sheet of paper at most.

Computer Lab 600 SF

The computer lab is mainly for teaching villagers how to use computers and internet. Students who come here for attending Liren University are encouraged to be volunteers teaching villagers on the techniques of using computer as a return for their education that they have received from volunteer professors. As most architecture students have their personal laptop, they use the computer lab occasionally.

Gallery and Exhibition Space 600 SF

Gallery and exhibition space is for architecture students to present their works to villagers to hear their opinions and suggestions. Occasionally, this place can be used for holding charratte with the community. It can also be used for free by the region artists to display their work.

Public bathrooms 500 SF

This comprises two separate male and female public bathrooms that are used for the architecture students and general public.

Recreational Facilities

Chess and Majiang Rooms 450 SF

Majiang has been the favorite table game throughout China, either in cities or in rural areas. It is a game in which four persons from different backgrounds sit down around the table and play the game against each other. Since it is a slow pace game, much daily conversation can naturally happen around the table. People usually consider it a good way to chat with friends and have a good time. Chinese chess is more popular among senior people. It is more intellectually challenging.

A Tea Room 350 SF

The tea room is close to Chess and Majiang Rooms, providing the people there with green tea. It has a boiling water machine, a sink and a cupboard to storage tea and other beverages. It is self service. Occupants are responsible for tea-making and cleaning by themselves.

Living Accommodations

Bedrooms 1200 SF

Four double-bed bedrooms with better facility are provided for visiting professors and tourists. There are private bathrooms for them with shower facilities.

Dorms 450 SF

Two dorms with four beds are for students and other youth. Guests who live in dorms are sharing one big bathroom which has shower rooms adjacent to them.

Administration:

Office 350 SF

A small office is provided for running the residence, adult training programs and Liren University. The administration will be controlled by the current villagers' representative.

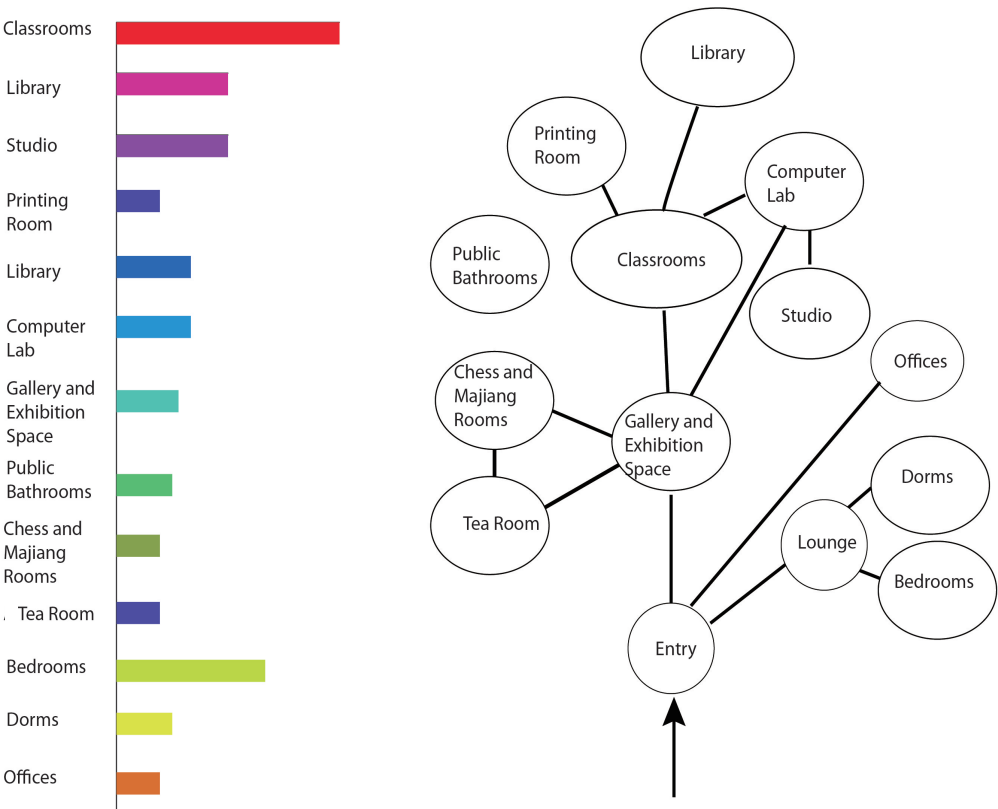


Figure 4.2 Diagram of building programs (Source: Author)

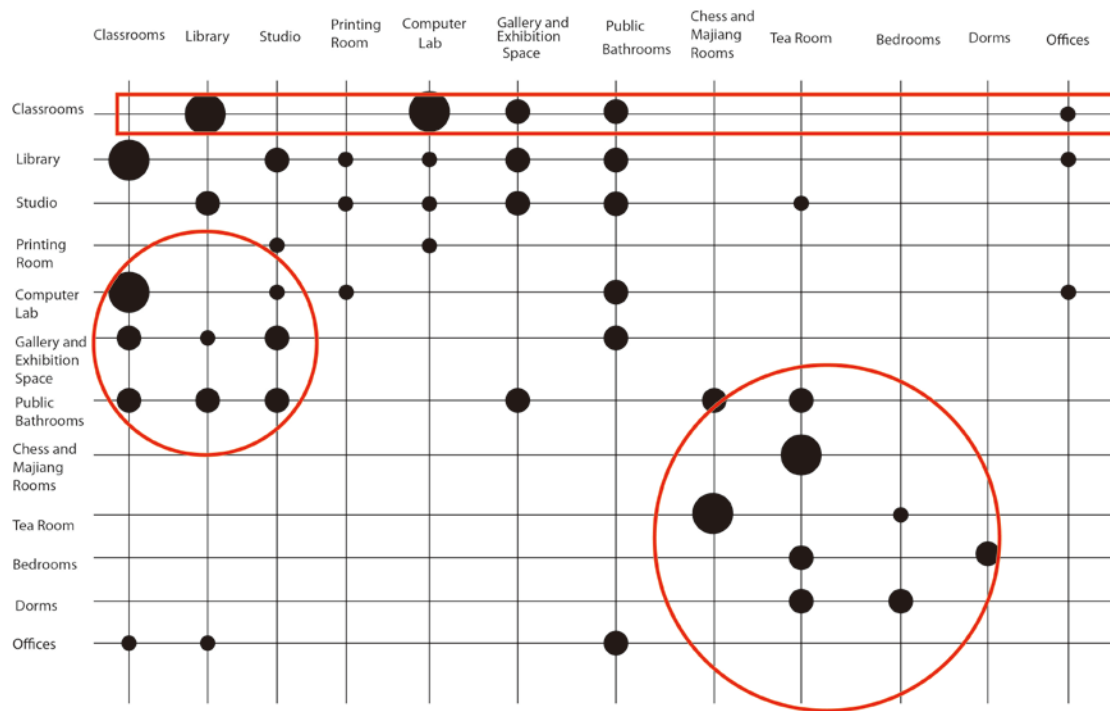


Figure 4.3 Program Matrix Analyses (Source: Author)

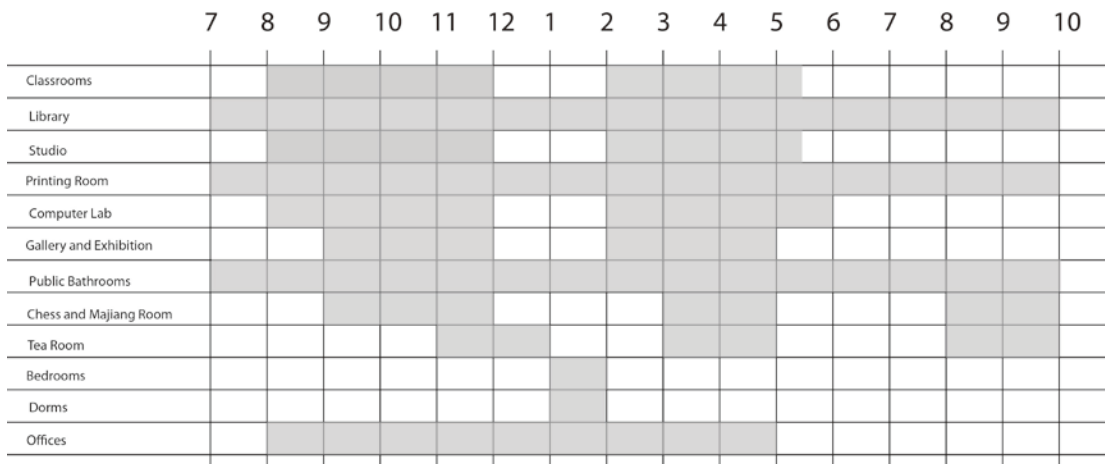


Figure 4.4 Program Use Time Diagram (Source: Author)

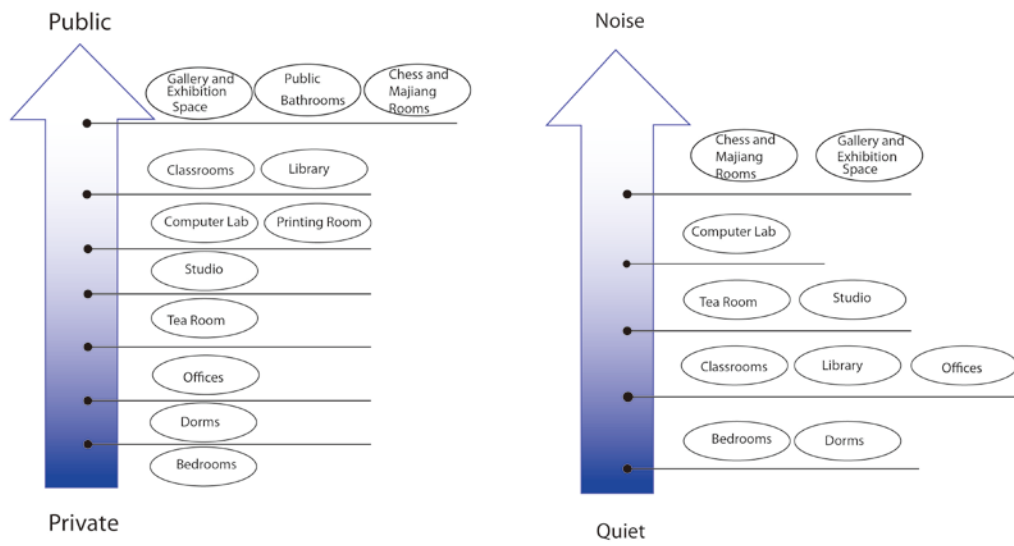


Figure 4.5 Public and Private; Noise and Quiet Diagram (Source: Author)

Technical Consideration

Dampness

Through the investigation, dampness has been the major issue that causes building defects and discomfort of the living. Therefore, an elevated floor from the ground could be one option for this thesis construction consideration.



Figure 4.6 Diagram of damp proofing strategy (Source: Author)

Building Material Options

Hubei Province has numerous mountains, lakes and rivers. Therefore, a large variety of local materials coming from the forests in mountains and rivers is available in rural places such as wood, bamboo, earth, brick, pebble and stone. The vernacular buildings are also constructed with these materials.

Relevance and Principles:

The intention of displaying these materials is to show the potential of having a rich material palette which provides a tectonic expression for the building envelop and structure elements.



Figure 4.7 Material variety in rural area of Hubei Province (Source: Jing Xin, "The Traditional Design and Skill on Constructing Wall Of Vernacular Architecture")

Brick Wall

There are a variety of types of brick wall construction. The most common types are shown in the following figure.



Figure 4.8 Vernacular Brick Wall Types in Hubei Province (Source: Jing Xin, 26)

Bamboo Joint

In the bamboo pavilion designed by a German architect in Wuhan, the typical joint of bamboo column could serve as a precedent for this thesis structure consideration.

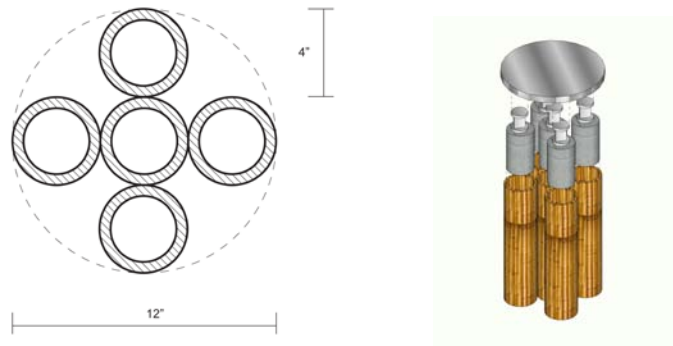


Figure 4.9 Diagram of the joint of bamboo column (Source: Author)

The Material Flow



Figure 4.10 Diagram of material flow of the historic building (Source: Peter Arkle, "Deconstruction, reconstruction: Wangshu's Use of Materials both Exploits and Exposes China's Reckless Approach to Building." *Architect*, April 2012, 66)

In the article *Deconstruction, Reconstruction* written by Blaine Brownell, AIA, he mentioned that architects nowadays should design the life of the building rather just the form and drawing. The lives of building materials are not fixed conditions, but rather part of a continually evolving enterprise.⁶ During the investigation on the site, an observation is made that villagers tend to collect, store and use materials from the past to build their new houses. The use of old materials could be creative. They could be used in different parts of the buildings or for different purposes.



Figure 4.11 Material reuse in Baoshi village (Source: Author)

⁶ Blaine Brownell, "Deconstruction, reconstruction: Wangshu's Use of Materials both Exploits and Exposes China's Reckless Approach to Building." *Architect*, April 2012, 66.

Conclusion

After the program analysis, the requirements of the space are made clear. How to meet these requirements on the specific site will be the target of the next design phase. Considering the different requirements of the programs and the site capacity, a decentralized scheme seems a reasonable direction to pursue. Through the materiality analysis, a strategy of reusing materials such as bricks, rocks, and tiles should be taken into account in the next design phase.

Chapter 5: Precedent Study and Analysis

Introduction

In this chapter, precedents of three categories are discussed. The cultural precedents discuss a project in a similar kind of historic village in China which has a great relevance. The functional precedents introduce how architecture can live on a rural site. The typological precedents include courtyard typology and light design typology. The further development of this thesis is based on the principles of these precedents.

Cultural Precedents

Location: Xiashi, China

Time Completed: 2008

Design: 2008

Client: Xiashi Village

Architect: Li Xiaodong (Atelier)

Project Description:

Area: 2670 sf (240m²)

A beautiful bamboo Bridge School won the 2010 Aga Khan Award for Architecture.⁷ Located in a rural Chinese village, it has revitalized the whole neighborhood by creating a locale for children to learn, a way to cross the

⁷ Aga Kahn Development Network, <http://www.akdn.org/architecture/project.asp?id=3796> (accessed Dec 5, 2012)

town's river, and a public assemblage space. Designed by Li Xiaodong, the Chinese scholar-like architect, who focuses on regional architecture design, this little two-room schoolhouse as a multi-purpose facility for the whole village, has become the most important and vibrant place of the town.⁸

Analysis and Implication

The Bridge school teaches a lesson on how to build on a Chinese historic site. The principle here is to keep the form simple, apply a logical structure system which fully accommodates the occupants' needs. The innovative structure also expresses the technology expression of the era. It does not have to include traditional decoration elements or to imitate the form. However, the color palette matches well with the surrounding buildings. This project has thought of the ritual of the place, the instinct human activities like sitting and sliding. It also utilizes the topography to make dramatic and pleasant spatial experience which maintains coherence with the program. Two options to get across the river are provided. One has a sort of adventure character and the other is more formal.

⁸ Inhabitat, <http://inhabitat.com/bamboo-bridge-school-wins-a-2010-aga-khan-award/> (accessed Dec 5,2012)



Figure 5.1 Bridge School Main Entrance (Source: Zhulong Architects Network, http://jz.zhulong.com/project_34617.html)

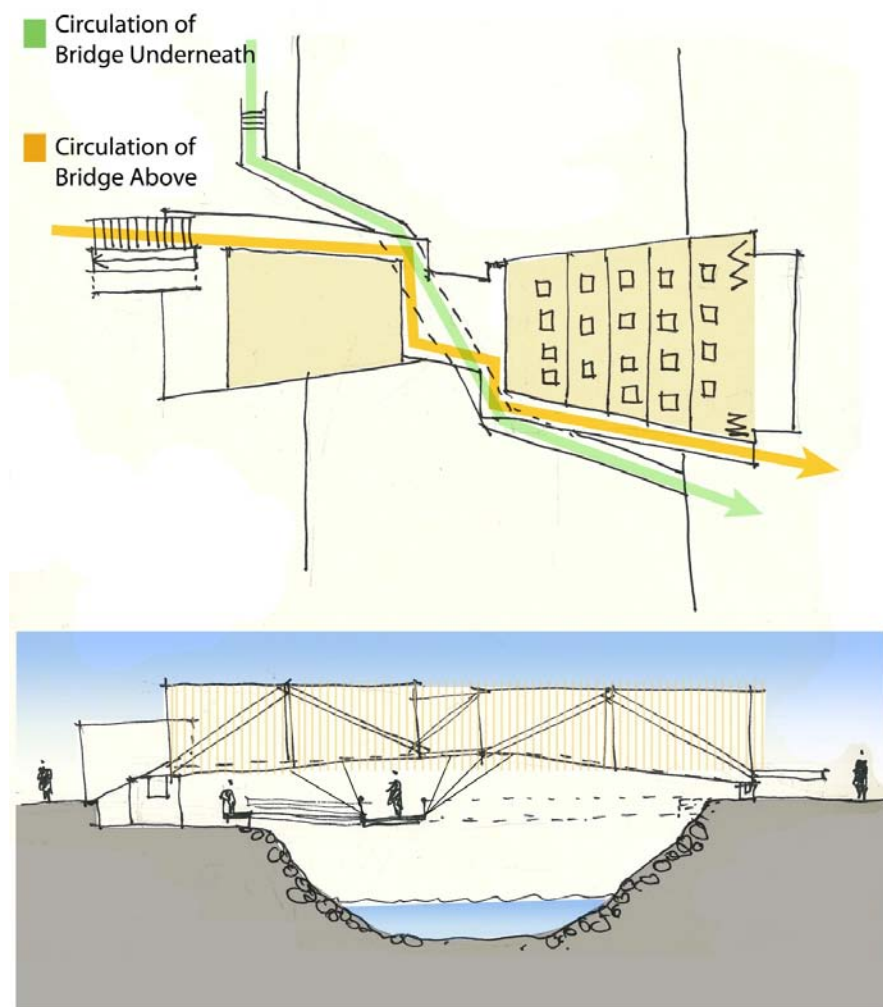


Figure 5.2 Diagrams of the plan and section of the bridge school (Source: Author)

Functional Precedents

Supershed and pods, 1997-2001, by Rural Studio

The barnlike supershed rises 16 feet and stretches 144. It shelters Pods--- cottages where second-year male students live. The cottages fit snugly in nine sixteen-foot bays between the shed's timber columns. The Pods are a hodgepodge of materials, colors, textures and quirky shapes--- the ultimate in assemblage. In built form, they express Mockbee's description of his own working method. He characterizes it as continually collaging together ideas and experiences.⁹



Figure 5.3 Supershed and pods (Source: Rural Studio.
<http://www.ruralstudio.org/projects/corrugated-cardboard-pod>)

This precedent provides the example on how architecture students can live in the village with humble materials yet interesting experience.

⁹ Rural Studio: Samuel Mockbee and an Architecture of Decency by Andrea Oppenheimer Dean and Timothy Hursley, Princeton Architectural Press; 1 edition (January 1, 2002) pg 71.

Tectonic Precedents

Transformation of Tou-Kung

Original

Tou-Kung is the typical structural element which serves as a joint between roof structure and columns. By stacking up in an incremental way, it allows the roof to extend further to protect the wood structure underneath.



Figure 5.4 Tou-Kung illustration (Source: Diagram by author based on drawings by Li, Yunhe; Cathay's Idea: Design Theory of Chinese Classical Architecture. Tianjin: Tianjin University Press, 2005)

Tou-Kung represents the characteristics of the structure which could be analogous to the nature structure such as tree branches. It contains a tectonic

meaning which describes the intimate relationship between human built environment and nature.



Figure 5.5 The metaphor of Tou-Kung (Source: Feng, Jiren. *Chinese Architecture and Metaphor: Song Culture in the Yingzao Fashi Building Manual (Spatial Habitus)*. Honolulu: University of Hawai'i Press, 2012)

Transformation of Tou-Kung

As a way of inheriting the traditional structure, modern architects in Asia have tried to learn from the past and interpreted in their own design language and intentions. A vivid example could be seen in Kengo Kuma's work: Yusuvara Wooden Bridge Museum.



Figure 5.6 Yusuvara Wooden Bridge Museum (Source: <http://kkaa.co.jp/works/yusuvara-wooden-bridge-museum/>)

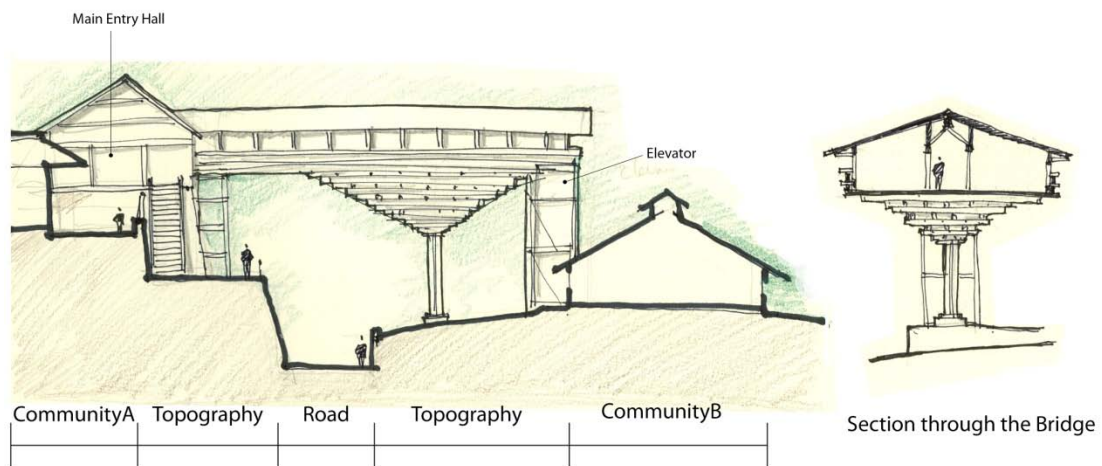


Figure 5.7 Section Diagrams of Yusuvara Wooden Bridge Museum (Source: Author)

Principles:

Structure principle is to use small pieces of materials to form a large span. It has the same principle with Chinese tradition Tou-Kung. By using small pieces of wood, it does not need bigger trees as its material supply.

Socially, it connects the two parts of communities which are isolated by the topography and the road.

Another relevance precedent

In the town center designed by Alvar Aalto, the same principle is also seen in the roof structure but with a different way.

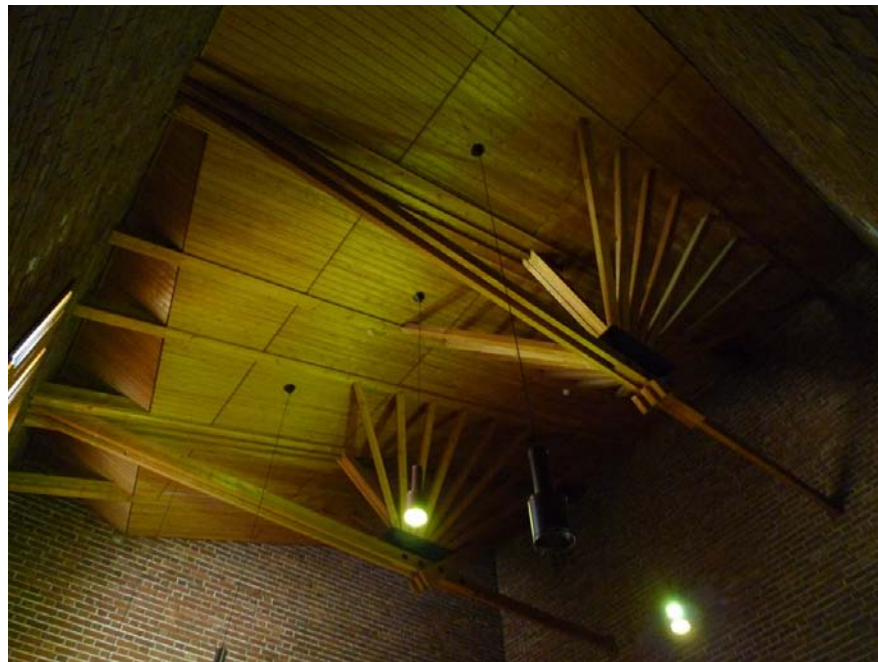


Figure 5.8 Roof structure designed by Alvar Aalto (Source: Author)

Typological Precedents

Courtyard Typology

Original Type

Courtyard buildings have been the most popular spatial type in China's building history. The picture below shows different courtyards in traditional housing in China.



Figure 5.9 Traditional Chinese Courtyards (Source: Li, Yunhe, *Cathay's Idea: Design Theory of Chinese Classical Architecture*. Tianjin: Tianjin University Press, 2005)

Possible Transformation

The transformation of courtyard building could have different extents of enclosure depending on different needs.



Figure 5.10 Experimental House by Alvar Aalto (Source: Author)

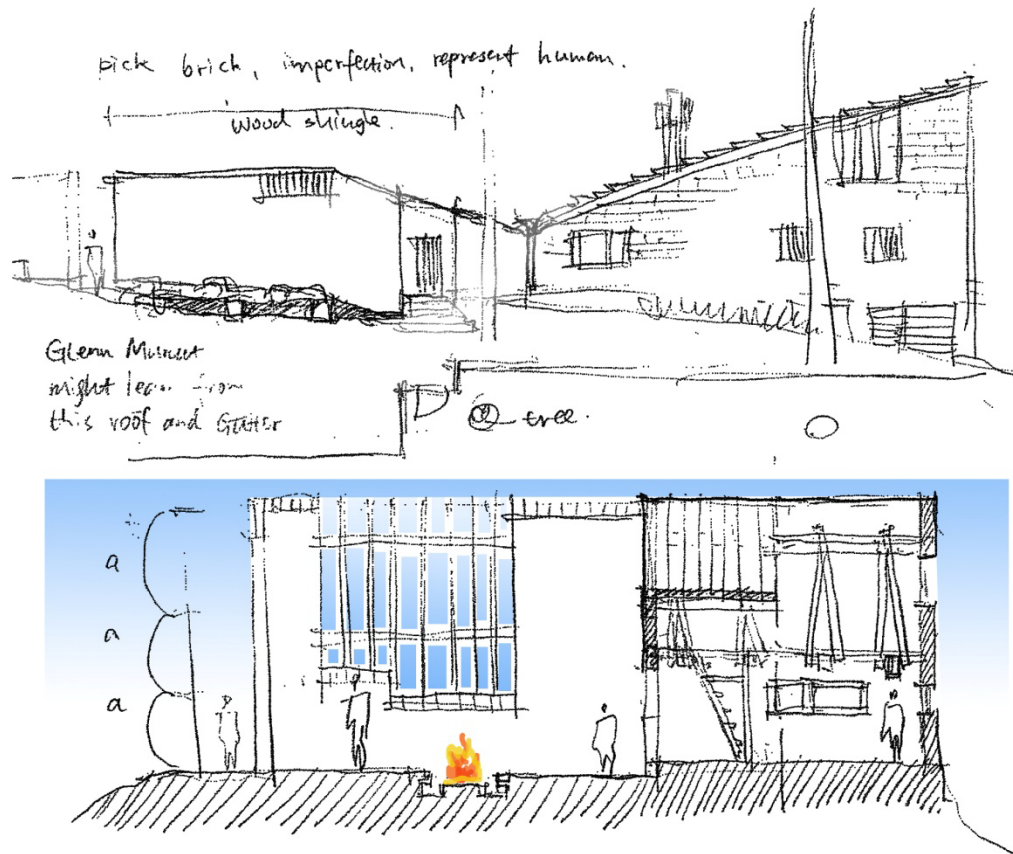
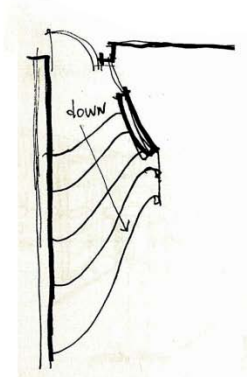
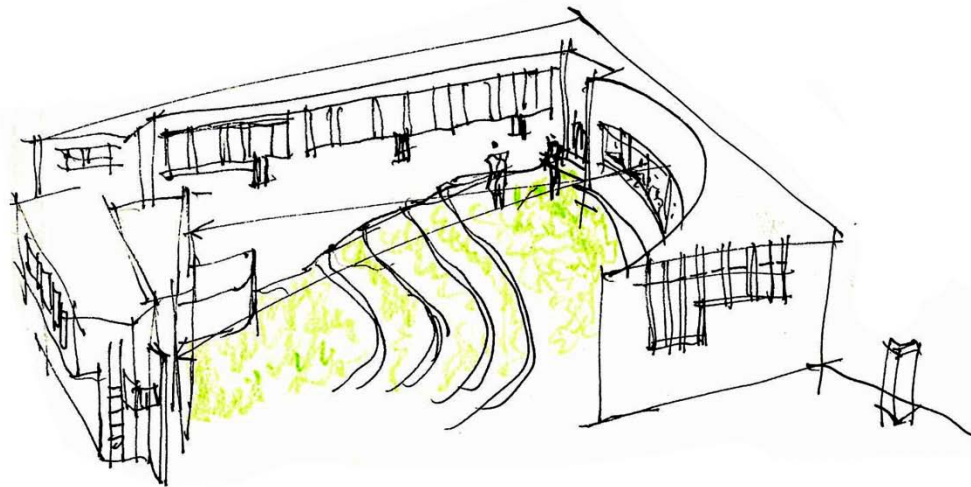


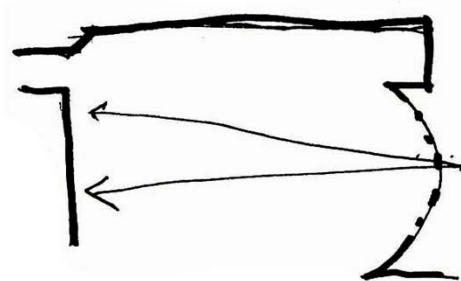
Figure 5.11 Elevation and Section of Experimental House (Source: Author)



Figure 5.12 Courtyard of Alvar Aalto Studio (Souce: Author)



Interior Steps have the same natural curve pattern with exterior topography.



The wall is used as a projecting background for the studio presentation.

Figure 5.13 Diagrams of Alvar Aalto Studio (Source: Author)

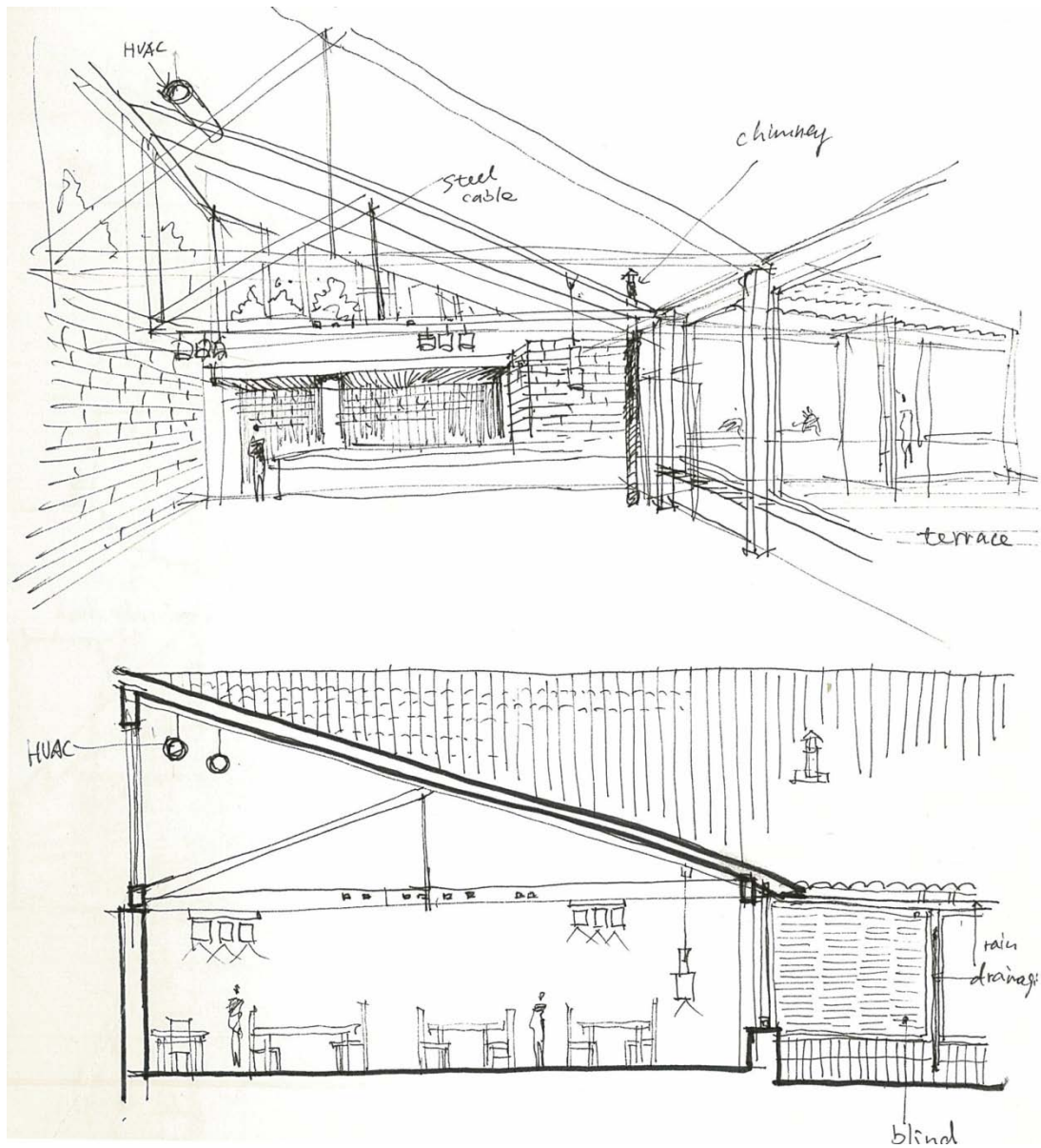


Figure 5.14 Diagrams of Student Cafeteria in Aalto University (Source: Author)

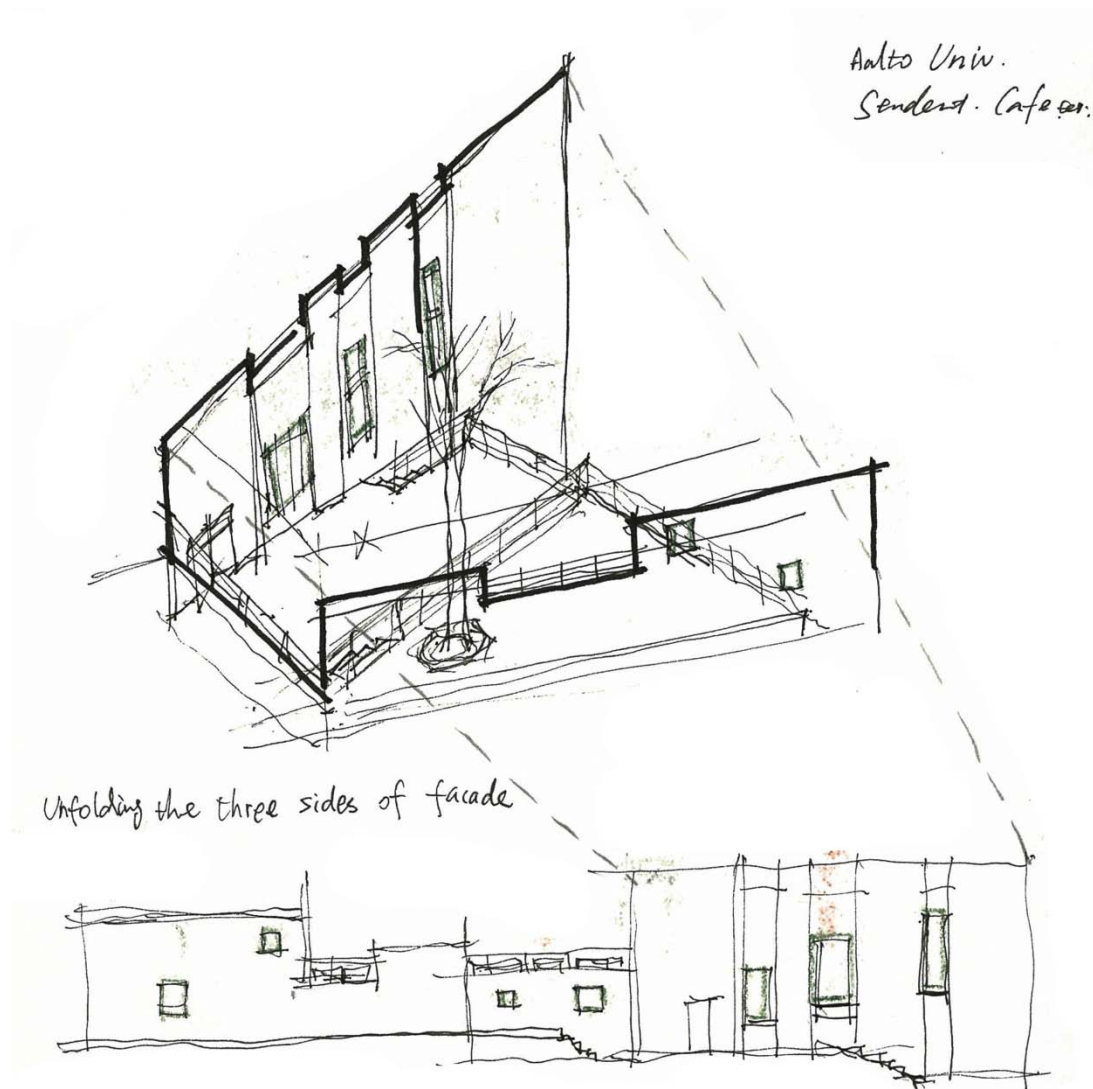
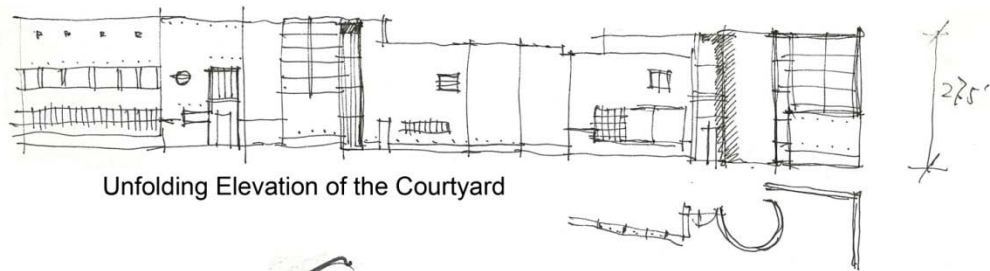
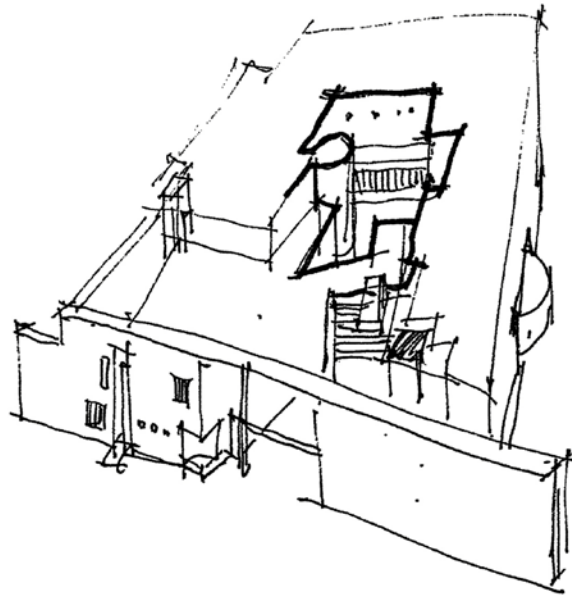
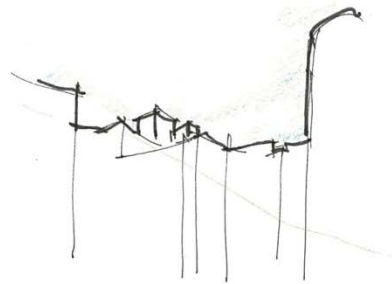


Figure 5.15 Diagrams of Courtyards in the New Student Dining Hall in Alto University (Source: Author)

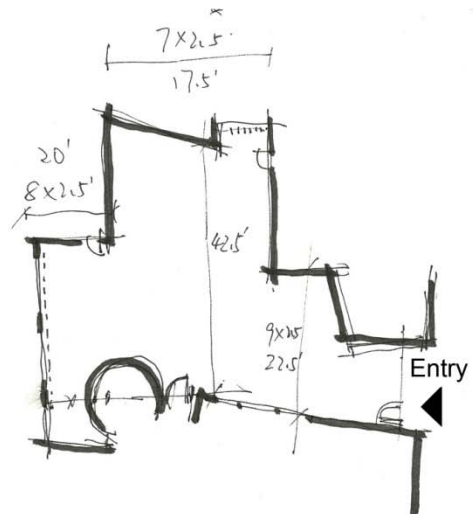
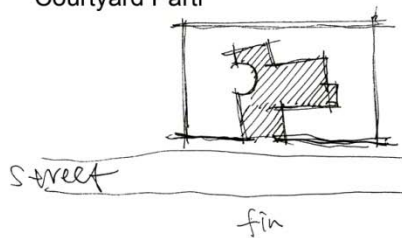


Unfolding Elevation of the Courtyard



Profile Lines of the Massing in Courtyard

Courtyard Parti



Courtyard Shape

Figure 5.16 Diagrams of Courtyards in Finnish Embassy in Sweden (Source: Author)

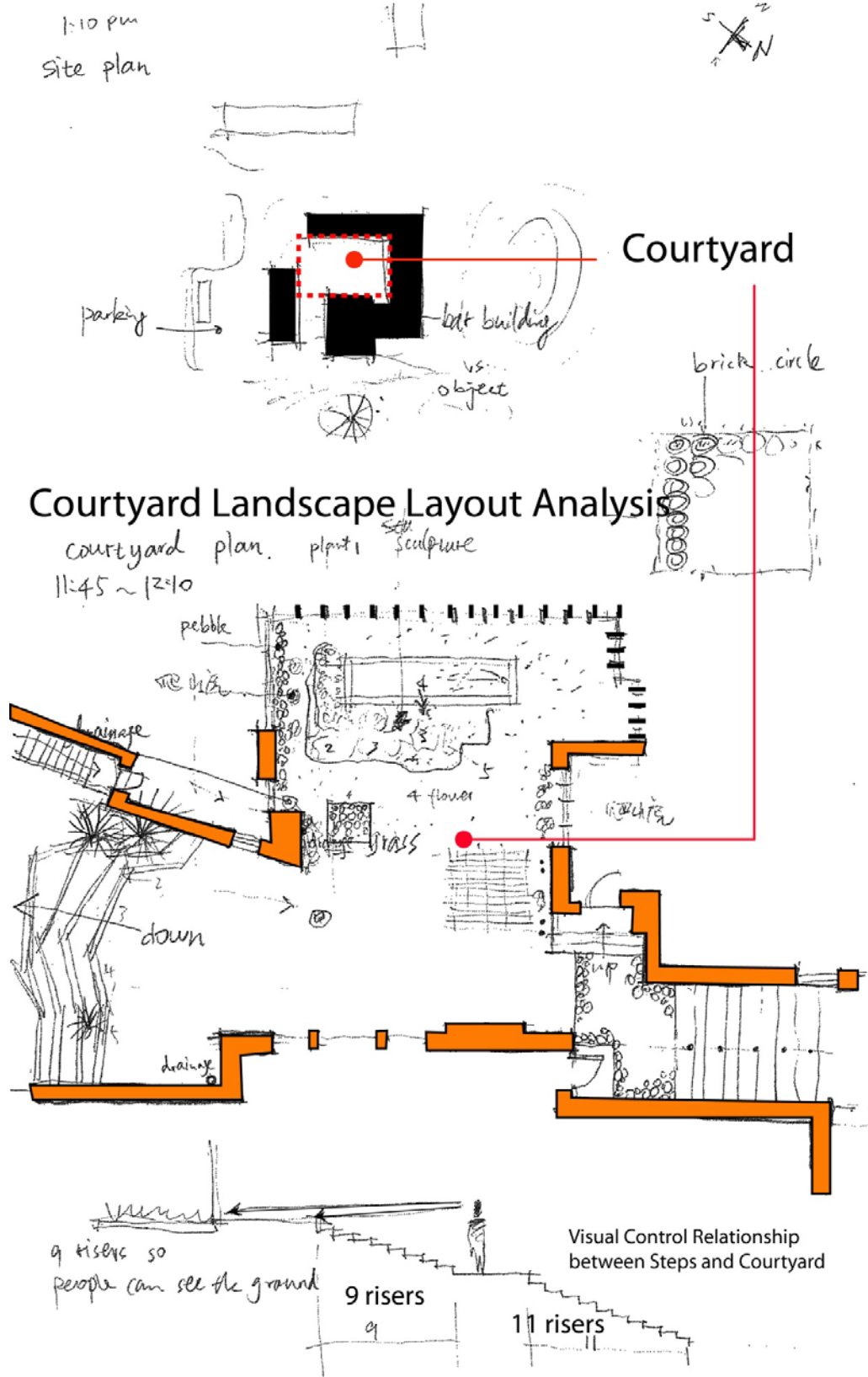


Figure 5.17 Diagrams of Courtyard Design by Alvar Aalto (Source: Author)



Figure 5.18 Courtyard in Säynätsalo Town Hall (Source: Author)

Light strategy Precedents

Light design is a crucial factor in this thesis. As it is described by Louis Kahn, the famous American architect, only through the uncovering by natural light does the constructional probity of transition joint of structural elements can only be uncovered by natural light.

Traditional buildings in China create an exquisite dialogue between light and material texture. Light is invited into the courtyard to illuminate the

surrounding rooms. In some cases, some parts of the tiles are replaced with glass or plastic material to let more light in.



Figure 5.19 Pictures of Courtyards in Baoshi Village (Source: Author)

Under the light exposure, the beauty of roof structure starts to tell the story of the builder and the past. They are usually sculpted into auspicious pattern.

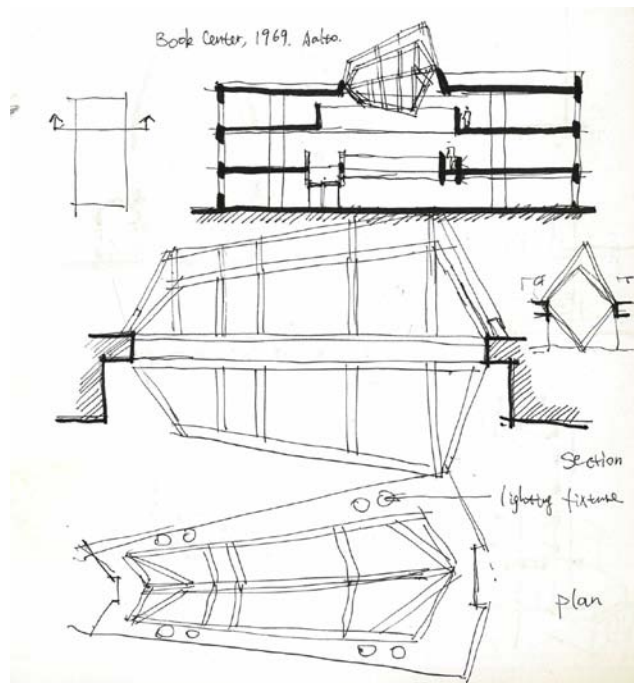


Figure 5.20 Diagrams of Light Well Design by Alvar Aalto (Source: Author)

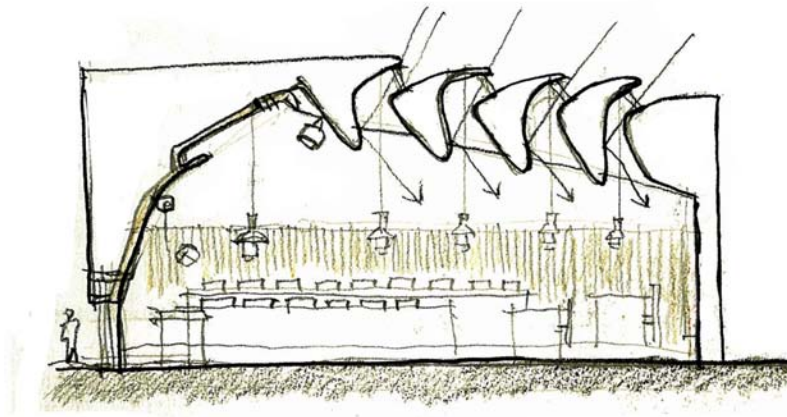
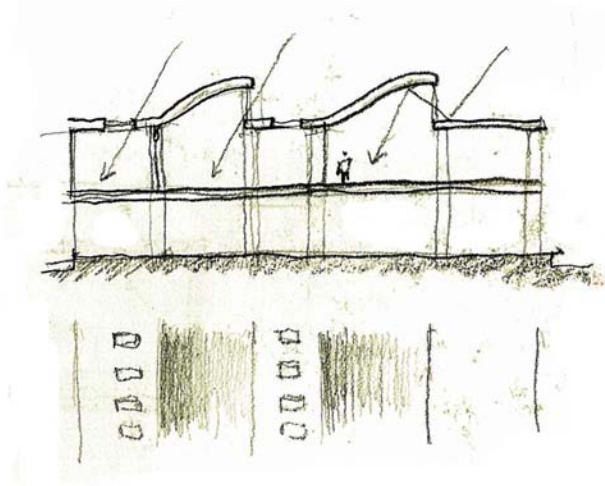


Figure 5.21 Diagrams of Light Design by Alvar Alto (Source: Author)



Figure 5.22 Picture of Light Design by Alvar Aalto (Source: Author)

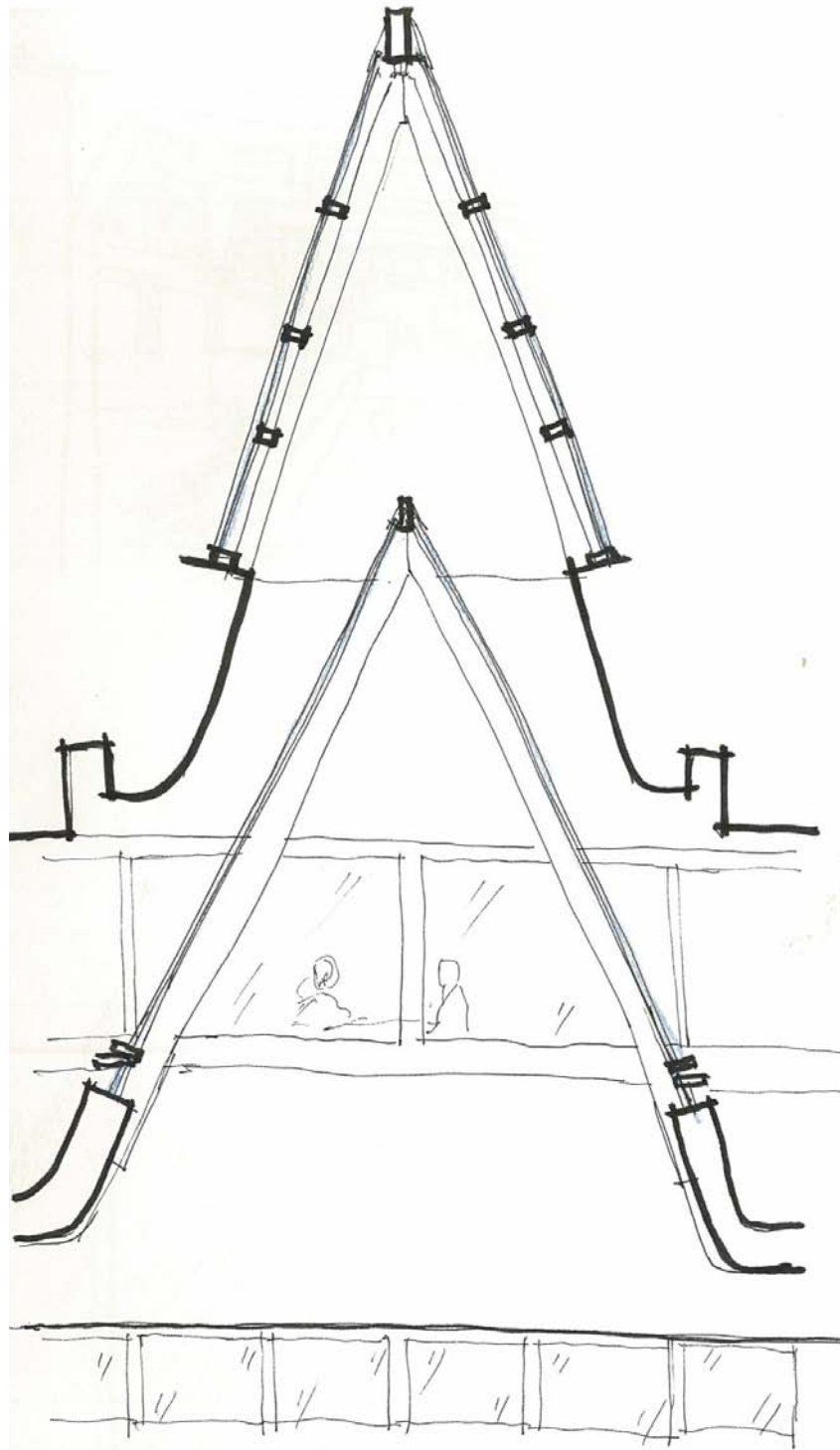


Figure 5.23 Sketch of Light Design by Alvar Aalto (Source: Author)

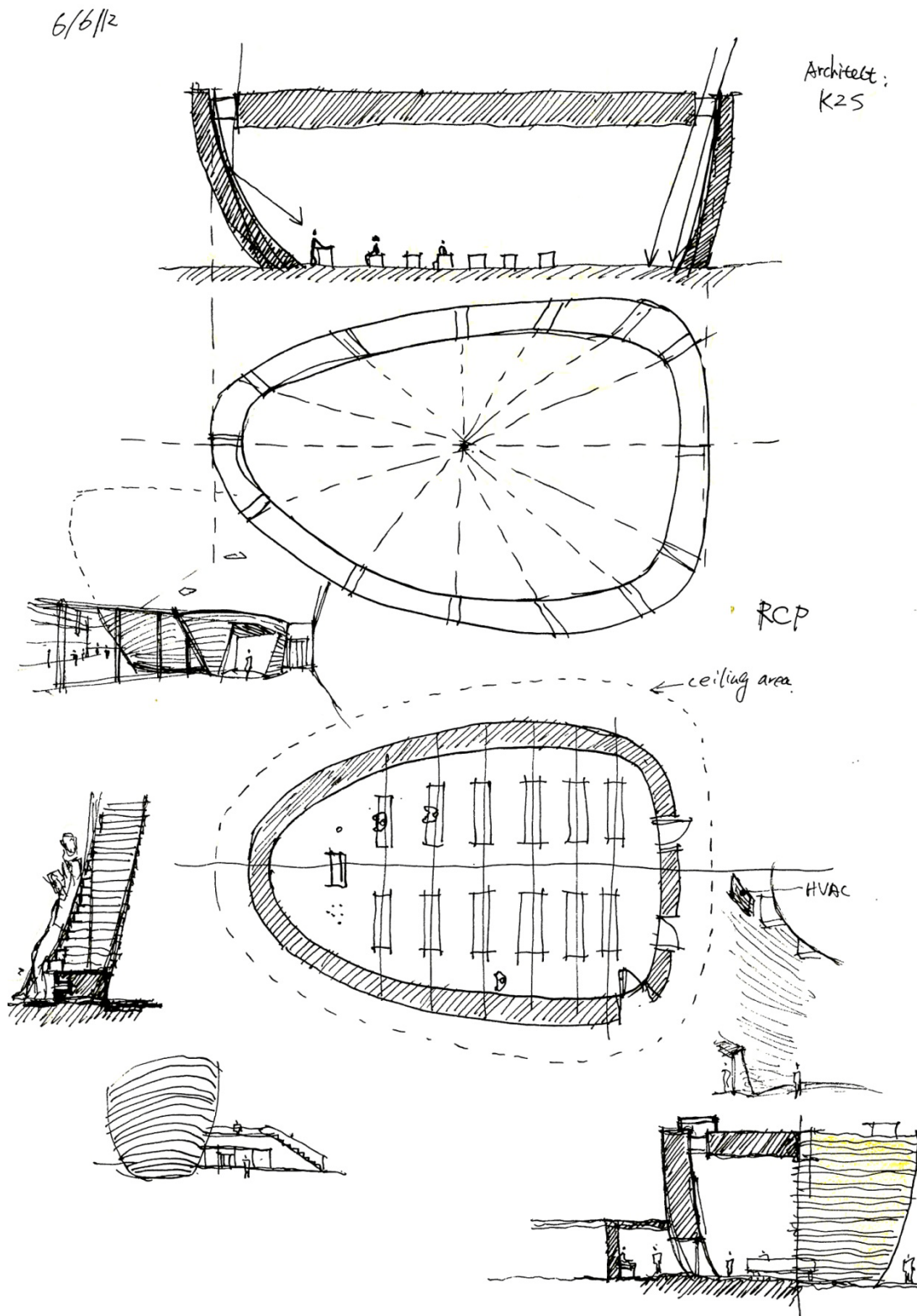


Figure 5.24 Diagram of Chapel of Silence in Copenhagen (Source: Author)

Case Study

China Children and Teenagers' Fund KPMG Community Center¹⁰



Figure 5.25 China Children and Teenagers' Fund KPMG Community Center (Source: http://nd.oooo.com/cama/2010/show/201010/t20101030_1155506.shtml)

¹⁰ <http://www.ovalpartnership.com/main.php?lang=eng>

Location: Peng Zhou, Sichuan Province,

Year: 2008-09

Area: 5600 sf

Architect: Hao Lin from the Oval Partnership

Project Description:

The Center is a Pro Bono work by the architecture firm, the Oval Partnership.

With a low cost, it received volunteer's labor support, cooperate financial supports from 30 national and international sustainable enterprises, science and research center and government agency. The project is aim at becoming the exemplary sustainable community center.

Program: after-school activities for the local children, adult training programs in holidays, sustainability exhibition.

Structure: Composite bamboo columns and beams for the framework.

Materiality: The composite bamboo material is derived from the local renewable forests and prefabricated in the local factory. The walls and roof adopt straw bale, agricultural fiber panel and bamboo cladding.

Sustainable features: Besides the sustainable material, it integrates the biogas system and has a reed bed landscape.

Lessons learned: Program wise, this thesis could refer to the community center concept in rural area. The project is proposed as a "community memorial hall", where local villagers can find inspiration, warmth, illumination, wellness, happiness. The design is trying to remodel the "Ci Tang" 200 years ago. "Ci Tang" is a term referring to the social center both spiritually and physically for historic rural villages in China.

Conclusion

From the precedents described in this chapter, lessons are summarized into the following categories.

1) Material palette, pattern and texture

Baoshi Village has a rich diversity of materials. By using them in a creative way, both esthetic and performance goals could be achieved.

2) Modern construction with local materials

As seen in the above precedents, many architects have attempted to apply the new construction technology to the local condition by integrating local materials such as new curtain wall system with local materials like stove stick, bamboo or straw bale as skin.



Figure 5.26 Curtain Wall with Local Material, Community Market Yusuhara by Kengo Kuma (Source: Takumi Ota, Archdaily, http://www.archdaily.com/199790/yusuhara-marche-kengo-kuma-associates/_mainimage_yhme_137_dn12579_1/)

3) Sustainability

Seeking opportunities to reuse different structure elements or materials into the new design will be a sustainable strategy.

4) Building Scale and Way of Grouping

Either Classic Chinese architecture or Classic Western architecture pays attention to the scale. The proportion of each structure piece with the whole architecture is essential to achieve harmony and rhythm. Additionally, unlike putting every program in a single volume, Classic Chinese architecture is inclined to have a group of buildings organized in a way where outdoor public space are valued. In this thesis, the way of grouping buildings will be studied to enhance the spatial experience and promote the public life.



Figure 5.27 Breaking down the volume into several intimate units, Gaoligong Museum of Handcraft Paper by Trace Architecture Office (Source: Shu he, Architectural Record, <http://archrecord.construction.com/features/designvanguard/2012/Trace-Architecture-Office-slideshow.asp>)

Chapter 6: Design Proposal

Introduction

This chapter shows the culmination of research and design exploration. The design concept consists of a series of interventions: path, dwelling, community center, and library.

Path

Situated in a historic village with beautiful natural scenery, a path (Figure 6.1) is proposed to capture the unique feature of the site so as to enrich the learning experience of the villagers and visitors. Along the path, a series of different spatial characters are unfolded, from the vast wildness of nature to the tight street of settlement. As it is pointed out in the chapter that discusses the site analysis, a pleasant and convenient way of getting across the river is absent in the village. To improve this situation, at the edge of the two parts of the village, a new bridge is proposed to link the social gathering places in two separated parts of the village. In addition, three important building interventions are linked to the path. The first building that visitors will arrive at is dwelling. Then they will move forward to see the community center. The last stop is the library. Further narrative of each of these buildings will be provided later in the paragraph.

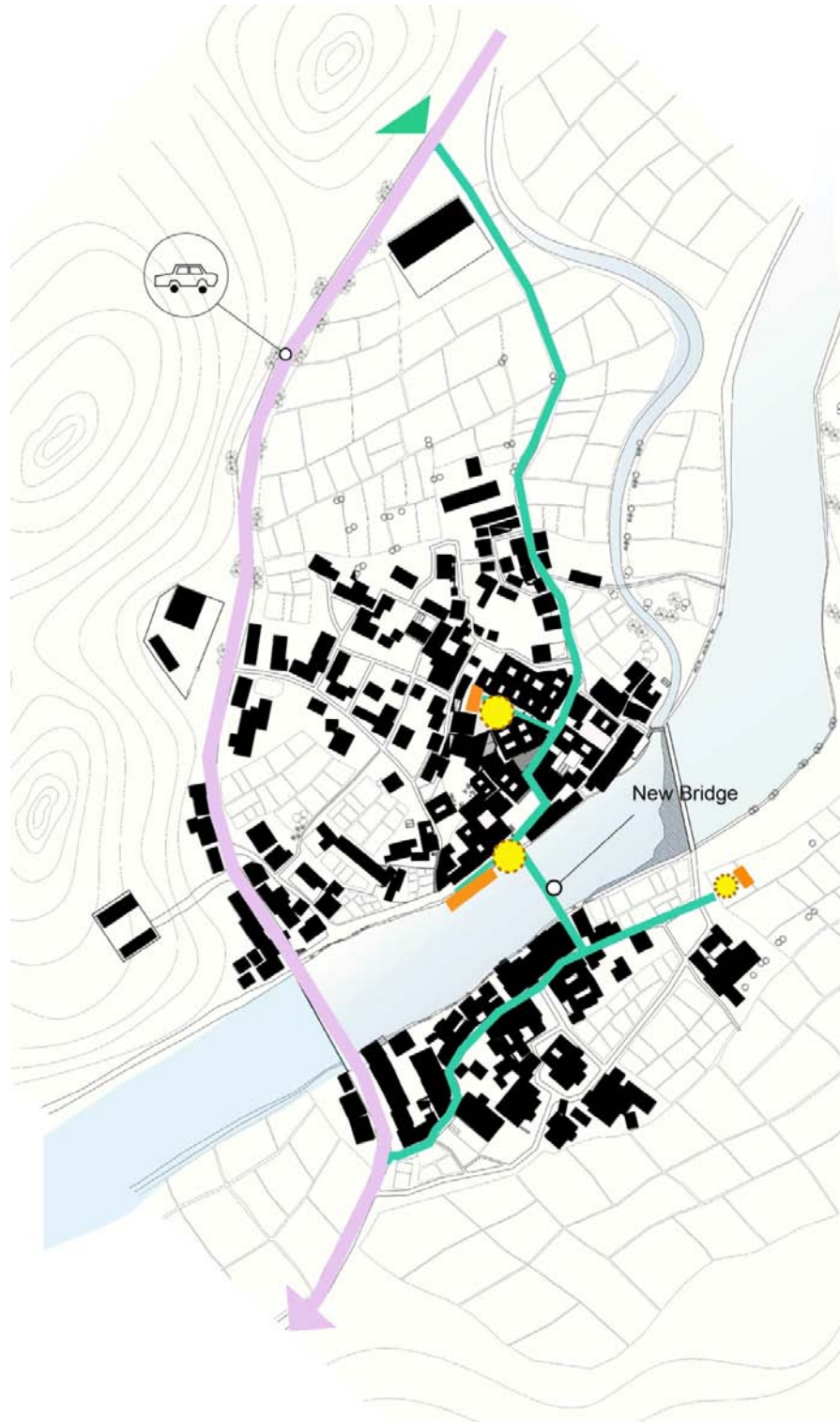


Figure 6.1 Proposed Path Diagram of Baoshi Village (Source: Diagram by author based on the drawing from Huazhong University of Science and Technology)



Figure 6.2 Aerial View of Proposed Baoshi Village (Source: Author)

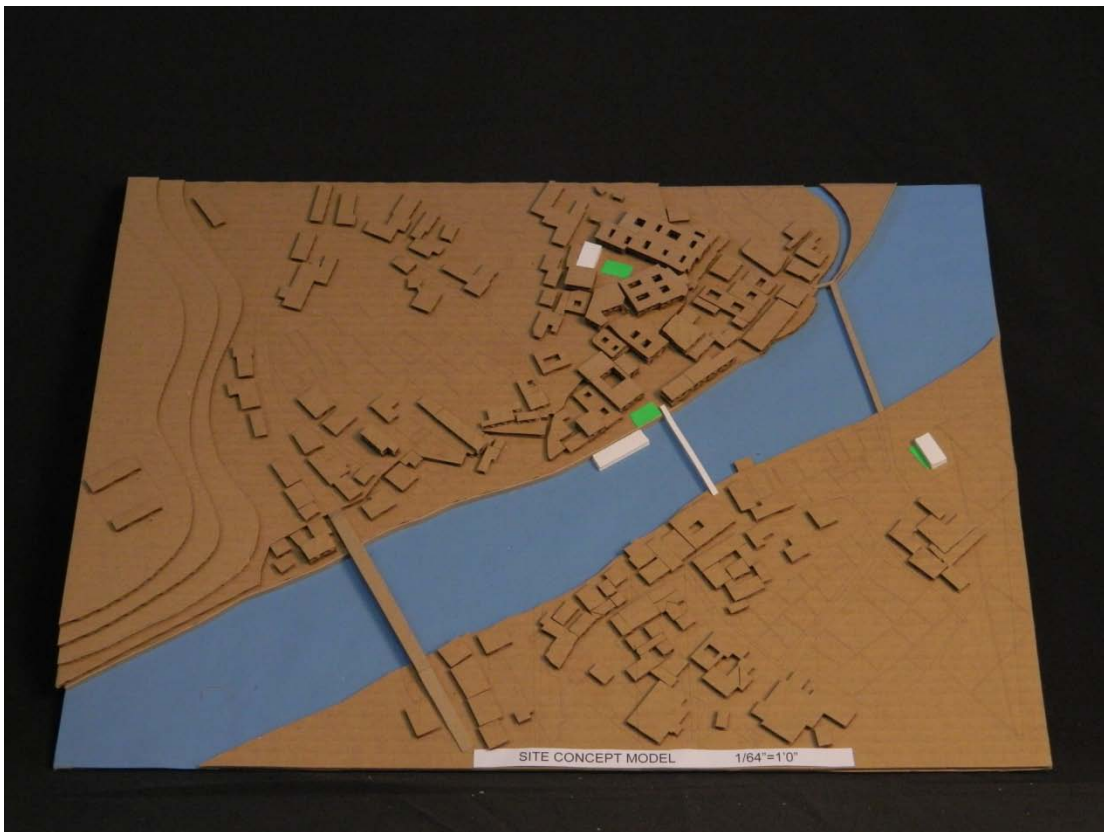


Figure 6.3 Site Model of Proposed Baoshi Village (Source: Author)

The existing condition of Baoshi Village is shown in the Figure 6.4. The temple is the only public building that people can get access to. The link between two parts of the village is weak. In a proposed condition of Baoshi

Village (Figure 6.5), public space has been largely improved. The community center, dwelling and library all provide indoor public space for people to stay. The new bridge connects the two parts of the village becomes a strong tie both spatially and socially.

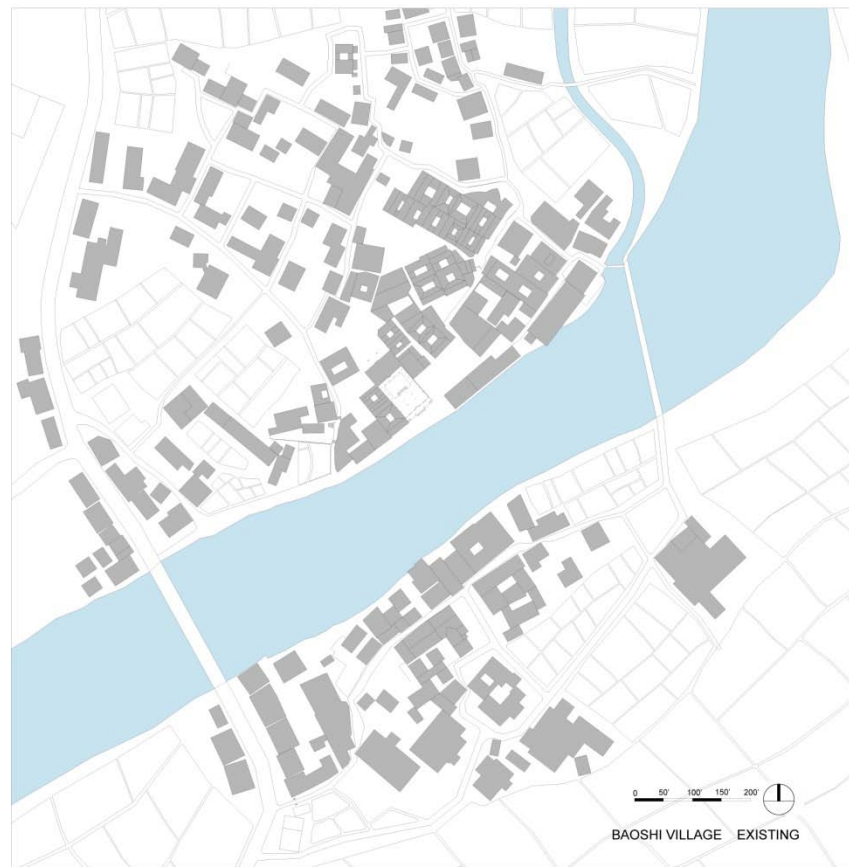


Figure 6.4 Existing Condition of Baoshi Village (Source: Diagram by author based on the drawing from Huazhong University of Science and Technology)

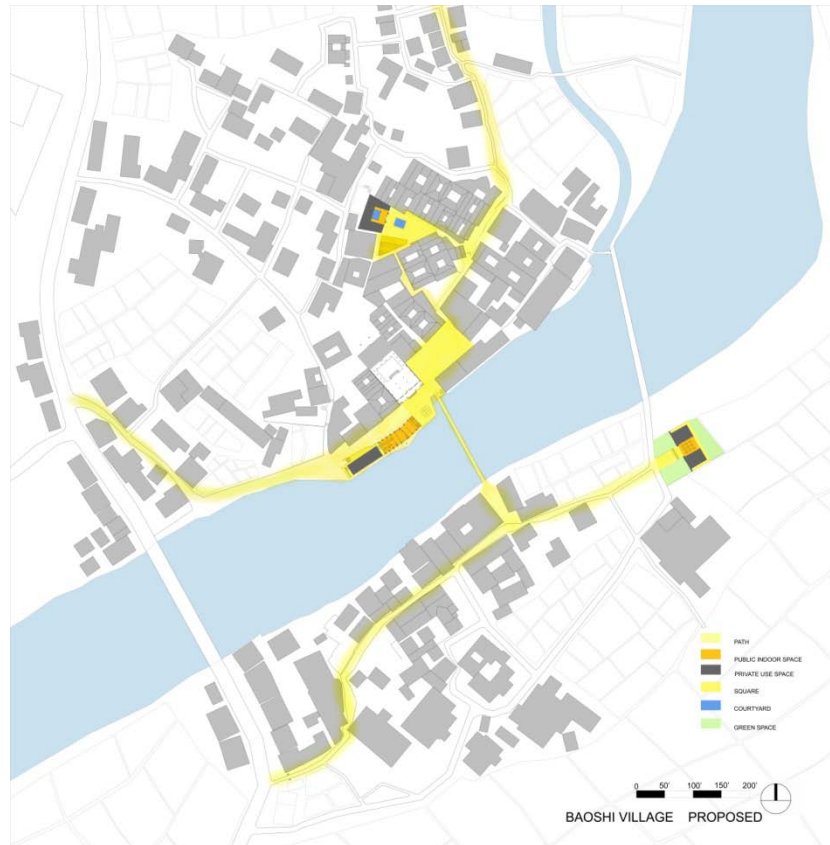


Figure 6.5 Proposed Condition of Baoshi Village (Source: Diagram by author based on the drawing from Huazhong University of Science and Technology)

Dwelling

Dwelling is the first stop that visitors from cities will arrive at. Professors and students will rest here for their trip. At the ground level, three bedrooms are provided with a communal bathroom, kitchen and dining room. Young students are encouraged to cook for themselves. Fresh vegetables and rice are available from villagers with a reasonable compensation. At the underground level, spaces for arts (Figure 6.7) are arranged such as architecture studio, photography studio, drawing studio and gallery. In these spaces, students will

have chance to communicate with and teach each other. Villages are also welcome to stop by to learn things from them. The atmosphere here is more interactive and less formal. The sunken courtyard with terraces can be served as an amphitheater where movies could be played at night or presentation and public speech are delivered. The other sunken courtyard which is adjacent to the studio is mainly for students who are engaging at making physical models, sculpture or other outdoor art structures.

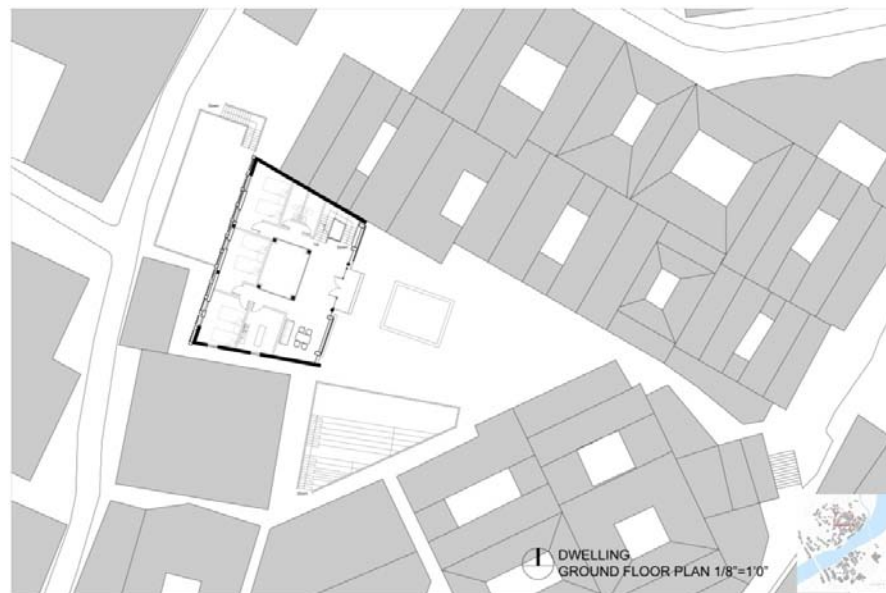


Figure 6.6 Ground Floor Plan of Dwelling (Source: Author)

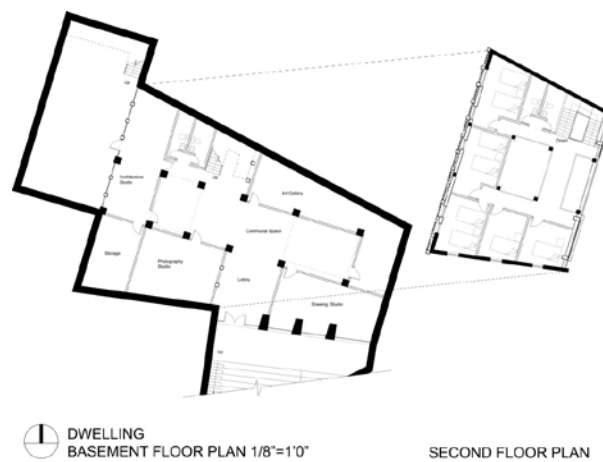


Figure 6.7 Basement and Second Floor Plan of Dwelling (Source: Author)

Located at the heart of the historic zone of the village, the design of dwelling is highly sensitive to its surrounding buildings in terms of spatial organization and tectonic language. Two indoor courtyards with glass roof are embedded along the axis of the dwelling, which maintains the spatial feature of existing historic buildings yet reinterpret it in a different way. The two sunken courtyards provide light and air for the underground spaces.

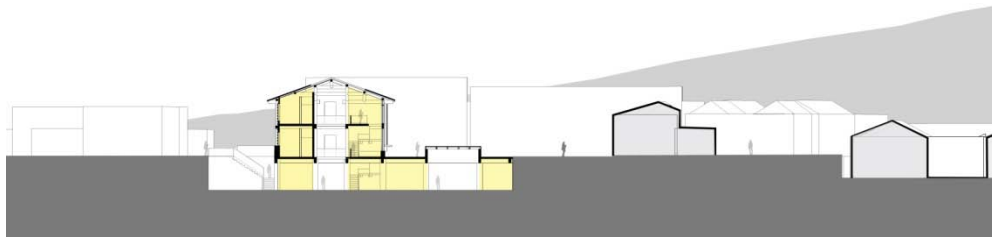


Figure 6.8 Section of Dwelling (Source: Author)



Figure 6.9 Section Perspective of Dwelling (Source: Author)

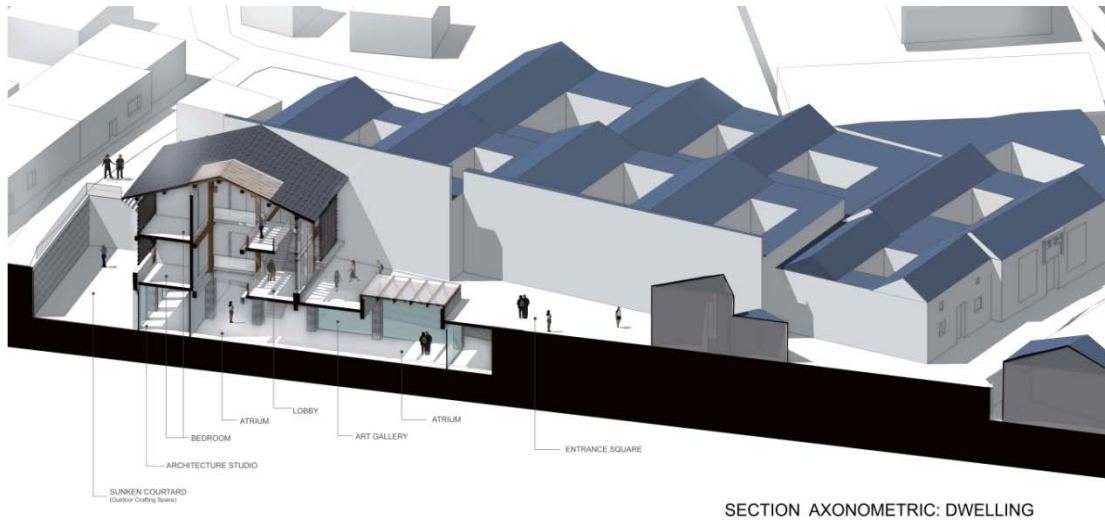


Figure 6.10 Section Axonometric of Dwelling (Source: Author)

The tectonic expression of dwelling takes lessons from the original historic building. The retaining wall and columns at underground level uses rocks and pebbles from the river, which are the prevailing material for building foundations in the village. The structure above the ground for the central structure bay switches to wood columns and beams which are constructed in a local manner. Two bearing walls which are made of recycled bricks support the other end of the wood beams.



Figure 6.11 Exploded Axonometric of Dwelling (Source: Author)

Community Center

The square in front of the temple is the most important public place in the village. The richness of existing activities which happen on this square is the driving force of the community center design. As a common routine, most of the villages go to the well to get clean water for daily use. Accordingly the place becomes a social occasion where villagers exchange their views and share information spontaneously. Another feature of the square is an information board on which the government news is spread. What's more, villages like to write poems on the wall or columns using chalk or brush to express their feeling and idea. As a response to these activities, the community center is located on the other side of the square, defining another edge of the square by providing a porch for people to have a short stay. Under the porch, there is a newly designed blackboard for villagers and visitors to showcase their hand writing and record their ideas. By sharing and exchanging information through writing on the new blackboard, the appreciation of knowledge starts to occur in the village. In the middle of the square, a smooth ground surface is designed to encourage passers to write Chinese calligraphy on the ground using brush and water. As local villagers and most people around China like to play Mahjong, the community center provides a waterfront place for it with great views outside. At the mezzanine level, people can enjoy tea there. In addition, there are three small sized classrooms where college students from Liren University will have their summer class

with visiting professors. In regular semester, the classrooms can be used by local children and villagers for their study needs.

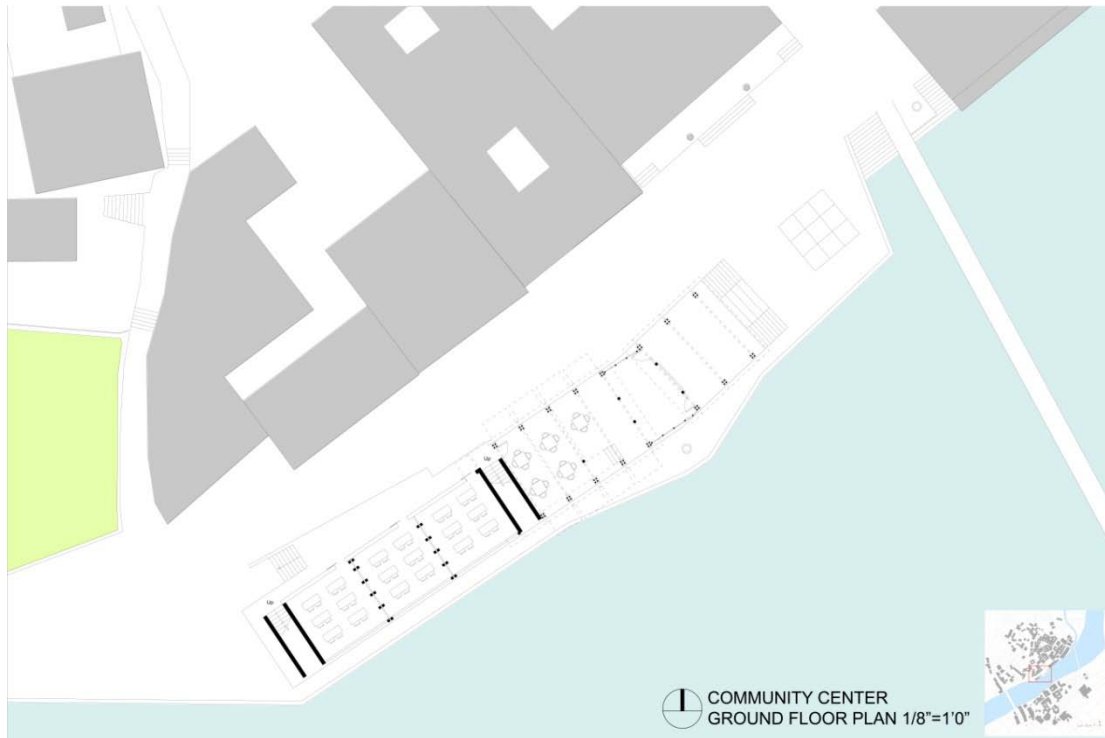


Figure 6.12 Ground Floor Plan of Community Center (Source: Author)

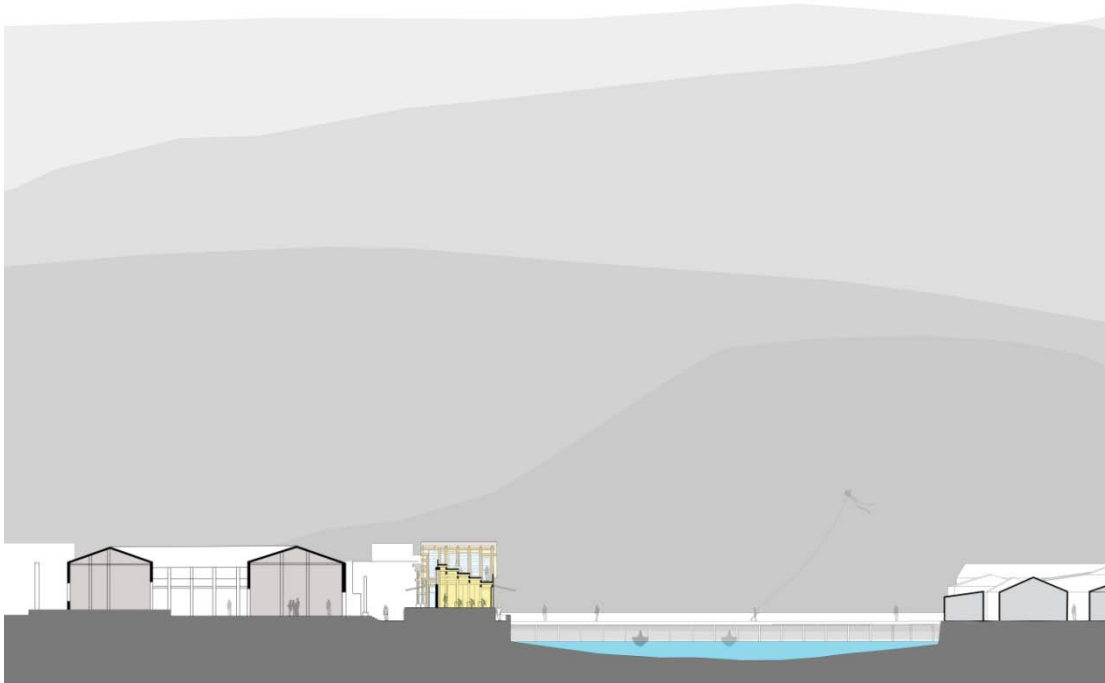


Figure 6.13 Section of Community Center (Source: Author)

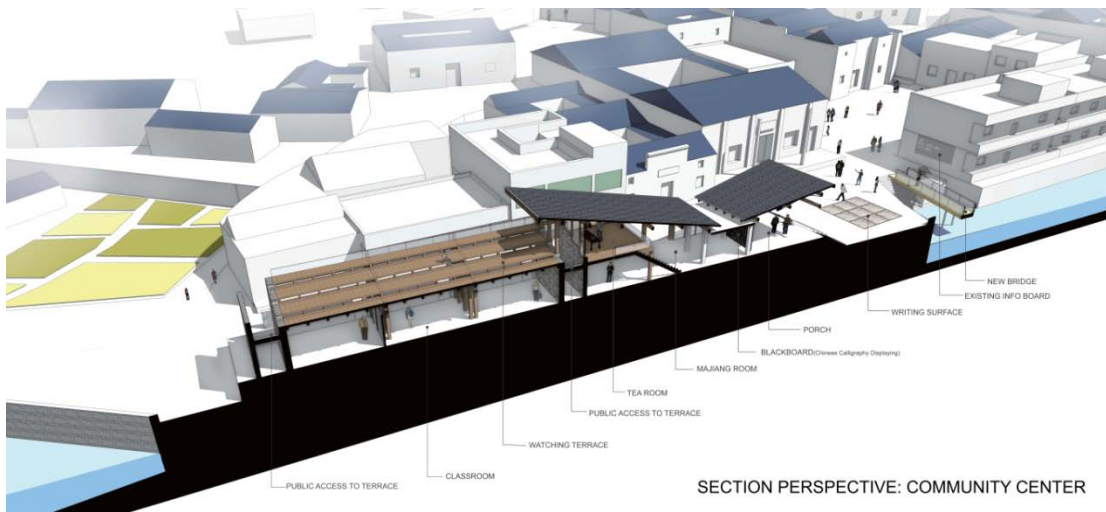


Figure 6.14 Section perspective of Community Center (Source: Author)



Figure 6.15 Entry Perspective of Community Center (Source: Author)



Figure 6.16 Waterfront Perspective of Community Center (Source: Author)

As it is shown in Figure 6.16, the base of the community center is made of local rocks. It serves as an embankment in case of the flood that happens every five years in the village. Unlike the existing slab buildings with rough construction, the waterfront elevation of the community center creates a more delicate image for the northern part of the village. By having a well articulated porch as the head of the community center, it reveals the important historic buildings behind. In addition, the roof of the three classrooms is used as terraces where people can enjoy the great view over the river.

During the Middle Autumn Day, more viewers will appear to watch the Dragon Boat Race.

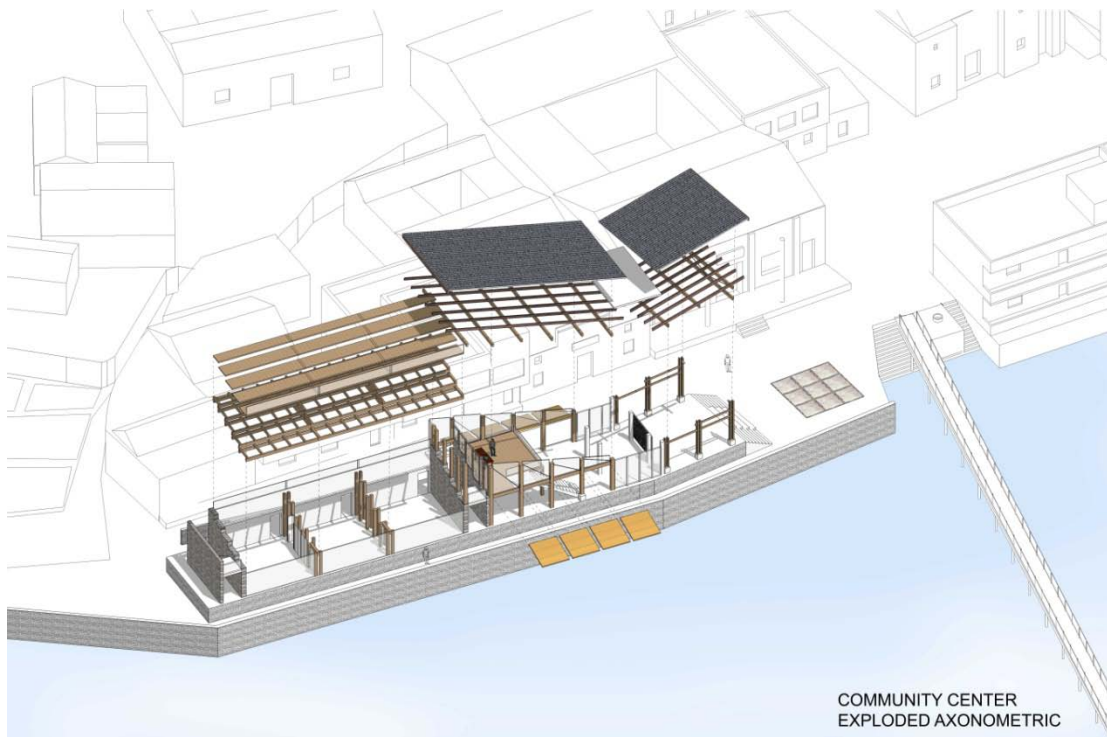


Figure 6.17 Exploded Axonometric of Community Center (Source: Author)

Library

The library is on the other side of the river. Readers can walk on the bridge and enjoy the view before they arrive at the library. It is located at one end of the important street, serving as a threshold between the urban condition and rural nature. At the other end of the street stands a memorial gate in praise of the knowledge of villagers' ancestor, who used to be the teacher of one of the emperors in Qing Dynasty. As a response, the library is also shaped as a gate form which has an open platform in the middle. It not only frames the view of

the nature but also express a traditional value that reading and farming can go hand in hand as one tries to educate themselves.

As it is shown in the ground floor plan (Figure 6.18), a reading room is arranged in the middle of the library. It is fully open on both sides in summer for ventilation. When in winter, it can be fully enclosed by sliding the doors on both sides of the room.



Figure 6.18 Ground Floor Plan of Library (Source: Author)



Figure 6.19 Second Floor Plan of Library (Source: Author)

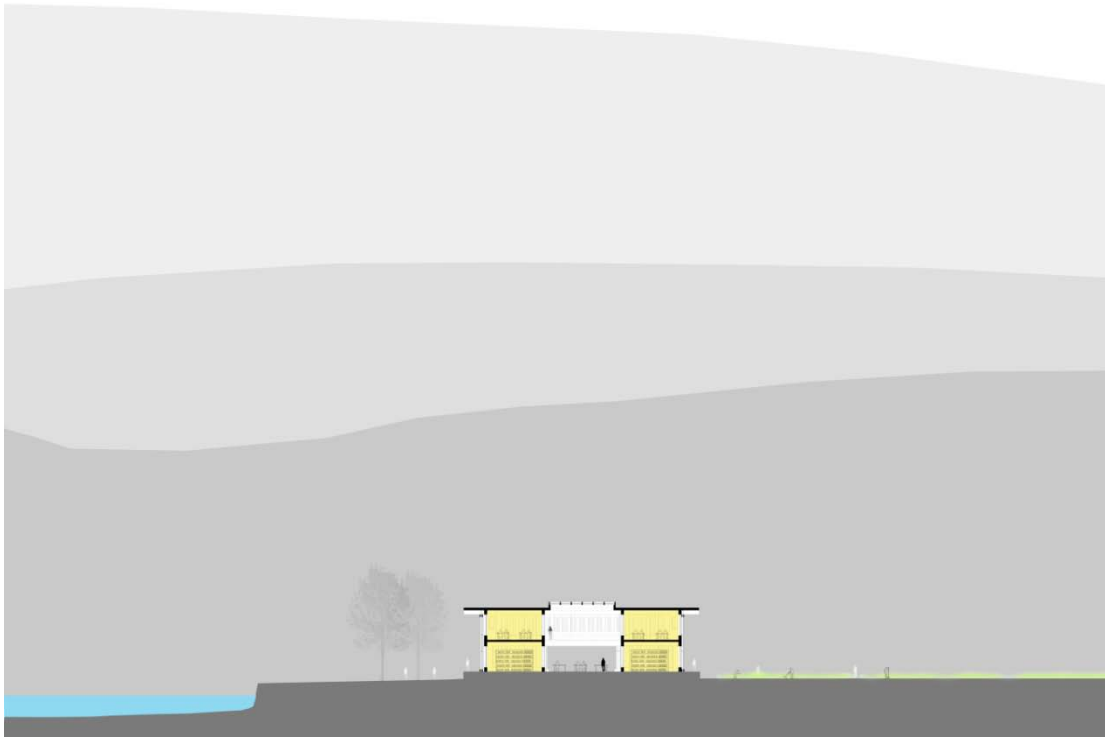
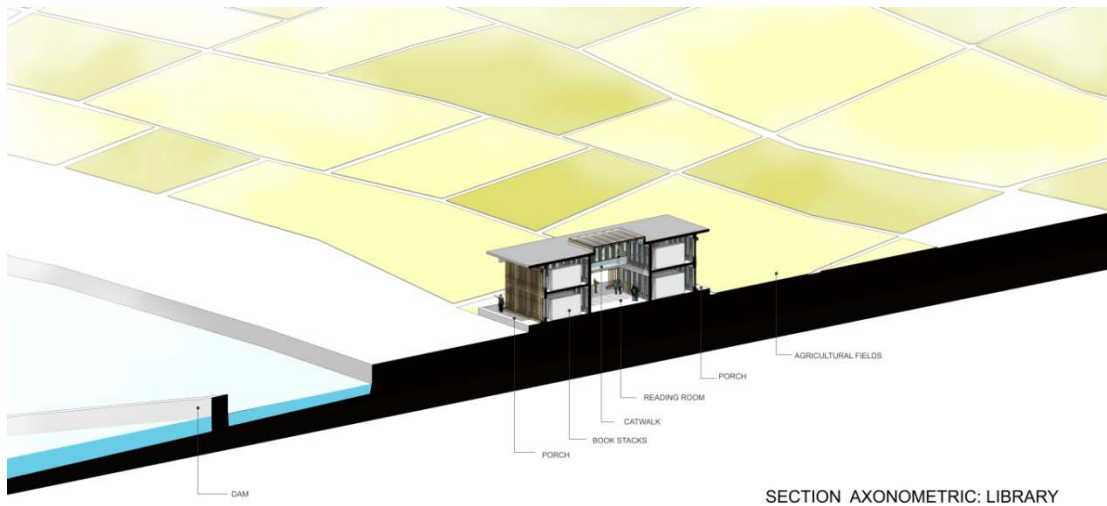


Figure 6.20 Section of Library (Source: Author)



SECTION AXONOMETRIC: LIBRARY

Figure 6.21 Section Axonometric of Library (Source: Author)



Figure 6.22 Perspective of Library (Source: Author)

As it is shown in the figure 6.23, the main structure for the library is concrete framing. It has brick walls with vertical windows as an envelope. The library has a solid facade facing the urban area. The facade is made of local rocks where builders can easily get from the river. On the back and sides of the library, the facades are wrapped with a bamboo screen for shading and aesthetic reasons. There is also a skylight on top of the roof which contains a layer of small bamboo members as a shading method.

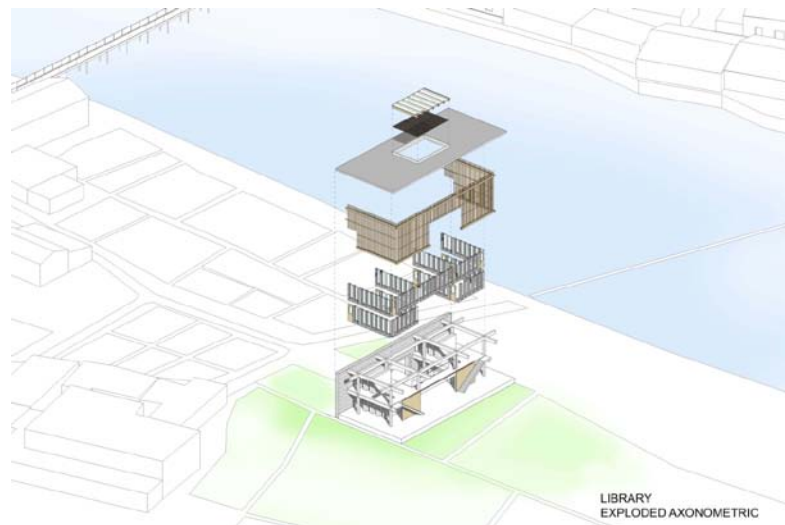


Figure 6.23 Exploded Axonometric of Library (Source: Author)

Conclusion

Through the appropriate interventions on the site, traditional life value has been greatly strengthened. New life pattern has been carefully introduced to the site as well. Based on all the proposed design intentions, a more sustainable and enjoyable future of the village could be envisioned.

Chapter 7: Conclusion

This thesis plumbs the current major rural issue in China, namely, a huge disparity of economic and social development between urban and rural areas. By proposing a supplemental education program in a historic village, an information harbor starts to take form. This is a harbor of knowledge and information between users with different backgrounds and skill sets, and a harbor where users can not only share information, but learn from each other. Moreover, the harbor, via the transformation of the historical Chinese village, will promote the development of the village in a more sustainable and cultural sensitive way in the future.

To realize this ultimate goal, a series of interventions are designed to take place, which are served as a starter to launch an incremental change throughout the village. These interventions include the proposed path, three buildings and their affiliated squares. The buildings are a community center, dwelling and a library, which accommodates both the villagers and the visitors for their needs of living, playing and learning.

Baoshi village here has been chosen as a case study. The proposed idea could also be applied to the similar villages around the region.

As a result of the design exploration, three major references are provided for the future relevant study.

Firstly, this thesis provides one possible answer for introducing new programs in a historic village. In reality, most historic villages are overwhelmed by the ambition of developers' commercial blueprint and gradually losing the original life style and life pace. Unlike the common developing strategy, this thesis tries to find a balance point between the realistic and idealistic. The introduction of Liren University and architecture students plays an important role for the viability of the idea.

Secondly, regarding the siting principles in a historic village, this thesis offers three strategies for three different site conditions: a dense urban site with intense historic building context, a waterfront site with an important edge condition and a rural site in the middle of agricultural fields. In each of the site, the proposed building has greatly responded to its physical and social context.

Last but not the least, architecturally, as opposed to existing slab buildings that have been newly built in the village, this thesis demonstrates how the local building culture can be adopted to the new development. Material reuse, tectonic expression and transformation of traditional spatial character are the key factors that lead to the authentic building design.

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