Regional Expression In The Renovation Of Remote Historic Villages

REGIONAL EXPRESSION IN THE RENOVATION OF REMOTE HISTORIC VILLAGES

A Thesis Presented

by

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ABSTRACT

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Due to the fast-pace of urban development, there is a large demand for labor in big cities in China. Also, because of a huge income gap between countryside and cities, an increasing number of youths in rural areas have chosen to leave their homes and transfer to the cities causing a rapid decline of population and the vacancy of properties. This phenomenon is referred to as "Hollow Village". Especially in case of some remote historic villages, due to labor turnover, villages which has precious historic and culture value are abandoned and stopped from development. Only children and elders are left in those villages without prospects.

Ling is among those backward areas. It has held a vital place in Huizhou culture during the history of Chinese rural settlements and contains a few ancient villages which share some common but features while being distinctive. However, with the lag of population and development, it is

gradually losing its style and forgotten by moderns. This district needs to be preserved and developed while its feature is protected.

This thesis will analyze Ling's current living conditions, tracing to its cultural and social changes through history and seeking to find architectural solutions, also by offering strategies that can lead to the revitalization of the place, while simultaneously creating some economic stimulations. The thesis aims to developing people's sense of belonging and identity towards such villages, in the hope of revving as a prototype for other remote villages in China.

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INTRODUCTION

1.1 Analysis background

1.1.1 What does innovation mean to historic villages?

Settlements in China, both urban and rural currently witness the over population, living pattern changes and newly developed areas that to fill the gap between established village and expanding cities.[1] Villages, comparing to a city of urban, so this is often described as groups of habitations in certain areas that engage in agriculture, handicraft, animal husbandry, forestry etc. The village is a broad stage within which the rural political, economic and cultural life of its inhabitants unfold. Those villages whose environment, context, and history need to be fully preserved are called "historic villages".

There are four rules in that govern historic villages' selection[2]:

1. Villages which were formed before 1911 and in well preserved with the characteristics of traditional streets and alleys;

2. Villages which have cultural relics which include ancient houses, ancestral halls, temples, justice courts, tombs before 1911, modern historic sites, and outstanding buildings;

[1] "History of Later Han Dynasty", in 12 Volumes, edited by Ye Fan & Li Xian, 1973
[2] "Measures of the Protection of Historic Villages in Suzhou City, 2005",

3. Villages that keep traditional styles of river systems, landscape relics, if the villages involve and old vegetation;

4. Villages that somehow maintain local folk culture.

Preservation means identifying, conserving, renovating, maintaining, or revitalizing to historic areas and their environment[3]. Historic urban areas, beyond their role as historical areas, embody the values of traditional urban cultures. Today many rural areas which have not been preserved are threatened, damaged or even destroyed due to the impact of the urban developments that follows industrialization in societies everywhere. In order to become most effective, the conservation of historic towns and other historic urban areas should be an integral part of coherent policies of economic and social development and of urban and regional planning at every level. Qualities, including the historic character of towns or urban areas and all those material and spiritual elements that express this character, should be preserved.[4]

The word "Renewal" appears together with "city" in urban planning area. After the Second World War, "urban renewal" appeared in the field of urban studies. To restore urban vitality, European countries and United States took the lead in large-scale "urban renewal" movements,[5] aiming at studying how to improve old cities, by developing and solving their problems. The process had a major impact on many urban areas, and has played an important role in the history and demographics of cities around the world. "Urban renewal" involves the relocation of businesses, the demolition of structures, the relocation of people, and the use of eminent domain[6], That process is also carried out in rural areas, referred to as "village renewal".

[3] "Report of Habitat: United Nations Conference on Human Settlements", Vancouver, 31 May – 11 June, 1976
[4] "Charter for the conservation of historic towns and urban areas", ICOMOS, (Washington Charter, 1987)
[5] "HUD Revitalization Areas", Retrieved 2 October 2016
[6] "Village renewal as an instrument of rural development: evidence from Weyarn, Germany" Community Development. 43 (2): 209–224.

China introduced the “village renewal” process in 1990s and then applied it into the conservation of historic buildings and ancient villages. For old villages, renewal is outcome of an alternating effect, which is an inevitable product of economic development of villages, diminishing, old villages have been through a dynamic process of growth, maturity and updating[7]. The renewal of historic villages can be seen as an inevitable outcome to certify a country’s economic improvement of a certain stage. In fact, people are always keen on improving their living environment in a dynamic way, renewing a historic village is a complimentary action in helping the villages to finish a cycle from growing, maturing, recessing and updating. It should contain two basic goals: enabling people’s living function and improving their living quality. In a sense, the renewal to a historic village is the update to its formation and function.

Nowadays, with the improvement of modern life of urban cities, public transportation and communication technologies, even remote villages have possibilities for development. However, during the reconfiguration of transformation, many of the positive ways of livings and cultural relics have not been effectively protected. The tendency of urban living patterns in villages has led to the loss of traditional characters in some historic villages. At the same time, the transformation of rural areas into urban towns took away many beautiful cultural elements which living together with those historic villages as a cost.

As an example, I will expand on Huizhou. Huizhou carrying with its unique cultural features, a long but glorious history, plays a significant role in the history of China, especially in the field of architecture. In the past thirty years, the rapid development of Huizhou tourism and the rise of

[7] "Theory and Method of Interdisciplinary Research on Vernacular Architecture", Xiaofeng Li, 10/2015, ISBN,

Hui Culture study, has made Huizhou became famous among researchers worldwide. However, the irreversible trend of modernization is strongly impacting the original living pattern in some historic villages. The random exploration of tourist sites, especially some devastating construction, has lead the ancient Huizhou villages into a crisis. Thus, the eagerness to develop Huizhou villages, while preserving their historic heritage has become an urgent problem that needs to be solved.

1.1.2 Preservation of Historic villages in Anhui

Huizhou is a historical name, which initially was the name of Zhejiang province in Tang and Song dynasty. From the Song to the Qing dynasty, ancient Huizhou experienced four dynasties, which is a long history. From 1934 to 1987, Huizhou's jurisdiction was changed three times by the government. Until 1987, Huizhou typically referred to the city of Yellow Mountain in Anhui

Figure 1 Huizhou Distribution

province.[8] During its development, Huizhou built up a unique architecture style called Huizhou

[8] "The architecture of Huizhou", 10/2016, translated by the author. " http://old.huixue.org/news/view.asp?id=273"

architecture. Once upon a time, the merchants in Huizhou dominated approximately 500 years of business between the Ming and the Qing dynasty, they were called the "Merchants of Hui". Wherever they went for business, they brought the construction method of Huizhou architecture there and made the style of Huizhou spreading out all over the places, which caused big prosperity of Huizhou architecture at that time. It is one of the most important categories of Chinese traditional architecture style. As an important part of Hui culture, Huizhou architecture has always been respected by Chinese architects. Nowadays, the places that having Huizhou architecture are mainly located in the provinces of Zhejiang, Anhui and Jiangxi (**Figure 1**). Especially in Anhui province, where large numbers of Huizhou buildings are located there.

Due to the uniqueness of geographical location, the good condition of natural environment and a large number of historic buildings, rural settlements in Anhui reflect the most precious ideas of Huizhou people for village aggregations, and the style of Huizhou architecture was preserved better in Anhui rural areas than that in cities.[9] The overall layout, the residential structure, the building materials are all reflecting the central idea of "being surrounded by mountains and close to rivers". Because of its long history and its preserved style, Huizhou rural settlements hold the memories of the past times, and witness of a critical part of the Chinese culture. In 2010, Huizhou district was named as the first inter-provincial cultural and ecologically protective experimental zone.

Huizhou historic villages witnesses the historical and cultural development of China, it is the heritage of Huizhou history. However, due to the lagging intention of conservation and major

[9] "Preliminary Study on Human Settlements in Huizhou Villages", <Areal research and development>, Vol.22, No.3, Jun 2003

abandonment, Huizhou villages are losing their authentic style. The protection status is not optimistic. [10] Although many villages cognized to renovate their villages, many of the cultural remnants were destroyed by the pace of modernization without effective protection methods. It is not convincing to replace the history of a thousand year's by totally new modern architecture. Rescue backward villages is not only mean to protect the buildings themselves, but also to dig the cultural connotation. It is critical to enable the villages to catch up with the pace of modern life while protecting its heritage.

1.1.3 Developing remote historical villages in Anhui

Nowadays, the rapid development of urbanization has tremendously impacted the growth and brought huge challenges to historical villages in Anhui, but, it also brings an important chance of developing towards some villages. In some remote villages in Anhui, large demands of labor in big cities have enticed youths to leave their homes and transfer to the cities. This phenomenon has led to a rapid decline of rural population, the vacancy of property and disappearance of agricultural fields etc. Because of population movement, a lot of villages all over China are idle, stopped from developing. This situation is known as "Hollow villages", referring to the villages which have only children and elders left without needed care. The workforce depletion has caused the decline of its economic vitality in old villages and the increase of building deteriorations. Additionally, the conflict between the desire of contemporary living style has resulted in the tragic

[10] "Theory and Method of Interdisciplinary Research on Vernacular Architecture", Xiaofeng Li, 10/2015, ISBN, 9787112066506

reconstruction that threaten the character of those villages. To keep the context and keep the Huizhou village intact and prosperous, the villages need to be revitalized.

To conclude, the research on the innovation of remote historic villages can be seen from the following directions: strengths (S), weaknesses (W), opportunities (O) and threats (T):

S (Strength): The precious historical and cultural value;

The concentrated area of historical buildings;

The unique type of buildings;

The abundant natural resources.

W (Weakness): The tragic reconstruction of the buildings;

Lack of funding support;

Aging population increased;

Lack of labors for development.

O (Opportunities): Restore traditional business & production;

Develop tourism in the villages;

Enhance mutual communications between neighbor villages;

Promote building up characters of a village.

T (Threats): Insufficient information collected towards the villages;

Indiscriminate demolition;

Few attentions by government;

Immature preservation policies.

1.1.4 “Hollow Villages” survey analysis

There are many cultural devoid villages in Anhui, due to rapid economic growth, the development of science and technology, the improvement of medical conditions and living standards, which has increased the longevity. Some remote villages did not catch the opportunity to follow up with the development of modern society which causing many young people chose to leave their homes for better opportunities.

Based on the demographic census survey in 2006 running by National Bureau of Statistics (NBU) in China[11], there are 32 million and 880 thousand hollow villages in China with totally 47 million and 412 thousand people living in there. The number of families is occupied 48.9% of total rural families in China and the number of people is 43.9% of rural area population. (CHART) Anhui province is one of the provinces which having most severe phenomenon of hollow villages. Over 50% of rural villages are hollow villages, the structure of age is mainly concentrated on four groups, which are 65-69, 70-74, 75-79 and 80-84 with the percentages of 15.32%, 18.51%, 17.93% and 23.04% of total number of elders during the survey. Also, according to the population sampling survey report from China Research Center of Aging (CRCA) based on database of National Bureau

Age structure of Empty-nesters							
Age range	60-64	65-69	70-74	75-79	80-84	85-89	≥90
Percentage	10.16%	15.32%	18.51%	17.93%	23.04%	11.78%	3.26%

Figure 2 Age structure of Empty-nesters

[11] “The appearance of ‘Empty-nest’ families; translated by the author. http://www.stats.gov.cn/tjzs/tjsj/tjcb/zggqgl/200509/t20050928_37486.html

of Statistics(NBS) in 2014[12], there are 10 million and 300 thousand elders whose age over 60 in Anhui and 17.4% of them belong to “Empty-nest family”.

Over 50% of elders were married, 30% are widowed. Single, Divorced and Seperated took 10.61%, 1.86% and 1.1% respectively. According to the survey, nearly ninety percent (86.36%) of empty-nesters have children, and around half (48.34%) would not love to live with their children because of not wanting to bring troubles to their children (42.16%) or being lonely for not being taken good care of. To those people, four third (72.94%) of them get along well on with their children, they just sometimes do not get used to live with them or even do not want to. Otherwise, not enough living space, not agreed by their children and too far from their children are three reasons that stop the elders from living with their children together.

Based on the statistics, empty-nesters who own residential areas which are under 40 ㎡ (430.55sf) contains 43.86%, and which under 20 ㎡ (215.28sf) and between 20 to 29 ㎡ take 9.26% and 14.92% seperately. As for living facilities, there are 17.48% of the empty-nest families that do not have potable water systems at home, 44.29% have no gas and 31.87% have no interior bathrooms, which brought a lot inconvenience to routine lives of those seniors. However, most of the seniors (57.37%) felt satisfied with their living conditions because of adaptation to current way of living that they do not like to change their way of living any more.

Speaking of their health condition, the survey shows that only 29.58% of seniors are healthy enough to take care of themselves in daily life, while there are still troublesome problems to some seniors, which including going up and down stairs (21.61%), taking public traffic (18.54%),

12 “2014 Thousand villages survey by Shanghai University of Finance and Economics”, translated by the author, http://www.stats.gov.cn/tjzs/tjsj/tjcb/dysj/201608/t20160808_1385890.html.

wearing clothes (12.48%), taking a bath (16.89%), walking (4.89%) and eating (4.69%). Among the elders 69.77% of undertake the housworks in a family and the rest wait for their children to come to help them.

The survey of NBU in 2006 shows, a certain number of elders in Anhui has low level of education. Illiterate people or under elementary level took 33.96% and 25.55% respectively, which occupied 3/5 of the empty-nesters. Besides, 43.74% elders do not have any official jobs to keep their health insurance covered, which means their later lives had to rely on the government rescue. Among those elders, 13.67% has children that are not financially dependent and had to depend on their parents, which brought more pressure to those seniors. The number of the rest seniors (56.27%) who has the resources of income takes 41.24% on retirement pension, 33.73% on children's support and 25.03% on other resources such as relatives support and widow(single) subsidies.

During the survey, one important question explored the degree of participating social lives to elders from empty-nest families. It certifies that 48.15% of the seniors like outside activities, especially parks and squares (**Figure 3**). One group that should be noticed here is the elders who like to stay at home which contains 15.53% as total, this group of people need to be special cared of their mental health and need to be accompanied with. Also, it is an interesting phenomenon to see that many seniors love to visit neighbors' homes instead of going to entertainment rooms.

Although there are a lot of ways of spending leisure time for those empty-nesters, 23.54% of those elders felt lonely during daily lives, diminishing their quality of mental pleasure is not good.

Social activities and communications of empty-nesters						
Park/Public square	Neighbor's home	Entertainment room	University for aged people	Nursing home	Association of the elderly	Stay at home
29.51%	26.06%	20.93%	4.51%	3.49%	1.4%	15.53%

Figure 3 Social activities and communications of empty-nesters

1.1.5 Conclusion

The survey shows a series of problems towards the phenomenon of empty-nest families. Except for the seniors who chose to live on their own as mentioned above. The first problem is a lagging educational economic environment in some rural areas that make youths leave homes for better opportunities, leaving their parents alone at home. This is the primary reason that causing the phenomenon of "Hollow villages". The second is the imperfection of social security system in rural areas. Nearly seventy percent people do not have retirement pensions. Although a certain number of the elders do have pensions, the amount of money is too low to support their basic lives. Moreover, the poverty of some remote villages results in a lack of funds to change their poor living conditions. Last but not least, those seniors who suffer from medical conditions and lonely feelings do not get enough support from the government.

To conclude, the following remedies are proposed to help alleviate the deteriorating conditions of hollow villages.

First, reinforce the system of old-aged social security and establish efficient policies for rural areas' seniors to ensure that the elderly receive necessary pension and medical services.

Second, call for policy changes that would bring more nursing institutions for aged person, or provide enough funds for villagers to improve their basic living quality.

Finally, encourage the communications of neighbors and raise their awareness of the potential of mutual support. Carry out various forms of cultural activities and to build up an environment of harmony and happiness.

1.2 Objective and methods

Based on the above analysis of the environment characteristics of Huizhou villages and the phenomenon of "Hollow villages", this thesis seeks to explore an architectural solution that can revive the condition of remote historic villages, not only by design strategy, but also fundamentally contributing to stimulate the economy and improve the environment. Also, the proposed design method tries to revitalize the village's cultural pride that needs to be encouraged and provide a path towards a bright future.

This thesis has developed a methodology to approach the revitalization of remote historic villages, with the help of research on Huizhou villages and some renovation precedent cases. Moreover, this proposed design method explored the relation to one of the Huizhou villages is intended as a methodology that can be applied to hollow villages throughout the world.

Specifically, the design research can be divided into following parts:

1. Understand the natural and cultural environment of the site. It is important to obtain the best natural conditions the site has, get enough information about the people's living mode. The natural and cultural environment can directly impact the design.

2. Research the spatial and planning characteristics of the typical and individual village, get to know why the layout of the village became current look and how it was changed through history. This would help us understand in what ways that people like their home to become so that during the renovation, we can focus more on design strategies that can bring people's satisfaction to the new spaces that will be provide.
3. Explore clearly the factors that are obstructing the village from development and come up with most efficient ways to fix them. Especially try to find the most valuable elements that helping to make decisions about what to preserve and what to abandon.
4. Try to collect as many precedents as possible to support the design strategies towards rural historical villages. Understand various cases that faced different questions during their design and try to organize which one is best solution for the site.
5. Reference to local renovating and urban planning policies, then solve the village's problems with passion and rationality, great ideas and accurate analysis, and vision and concern.

CHAPTER 2

UNDERSTANDING HUIZHOU ARCHITECTURE

2.1 Natural environment in Huizhou

Huizhou architecture, with its unique natural beauty of combination of black roofs and white exterior walls, which looks like Chinese painting, outstands in Ancient Chinese architectures (**Figure 4**). Currently, the existing Huizhou architectures are contained mostly in Huizhou villages, where are famous for perfectly blending the natural environment for their building layout. Huizhou and its architecture draws a lot of interest by experts and scholars to study and explore them.

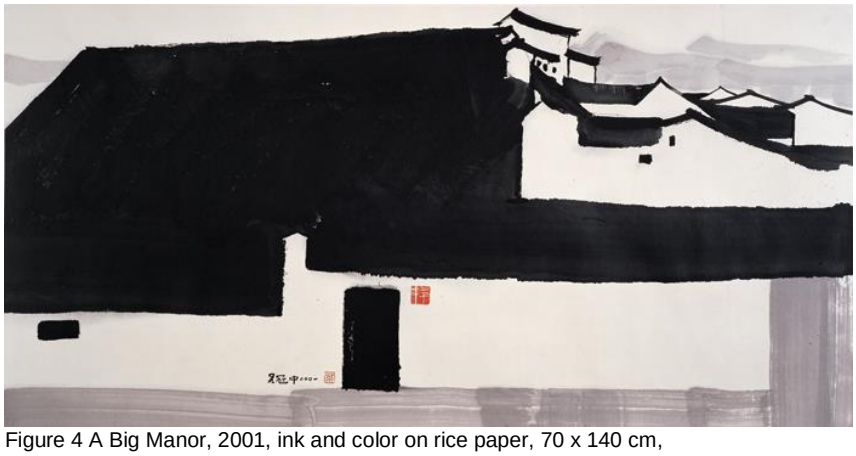

Figure 4 A Big Manor, 2001, ink and color on rice paper, 70 x 140 cm, Shanghai Art Museum, by Guanzhong Wu

Figure 5 Family by the Small Bridge by Wu Guanzhong

2.1.1 The background of the name

Huizhou used to belong to the ancient southern land of China geologically. After several tectonic movements through history, the center terrain of Huizhou became depressed and formed into a series of inter-mountainous basins **(Figure 5)** such as Hugh Basin, Qimen Basin, Yixian Basin,

Lianjiang Valley etc. The areas around those basins automatically evolved into short hills or valleys where the average elevation was above 1,000 meters. Because of the surface water that flowed

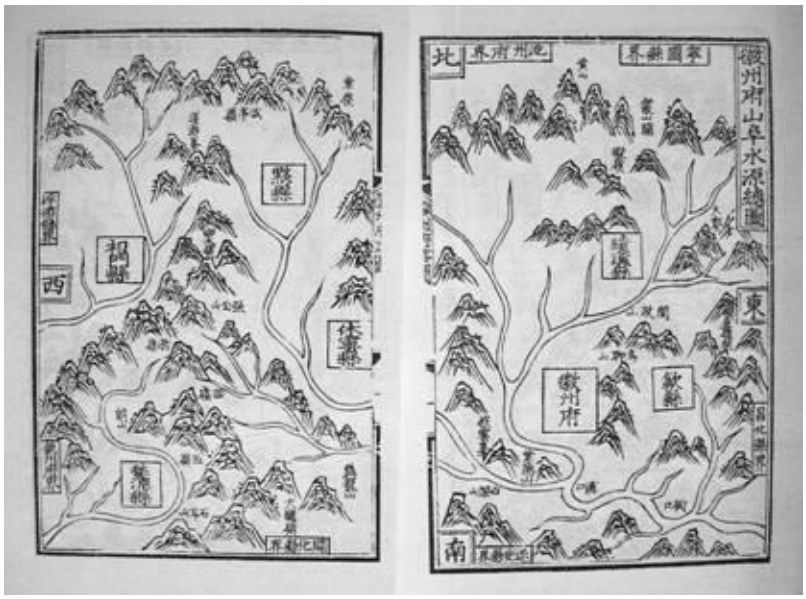

Figure 6 Huang Family in Huizhou, East Jin dynasty

along the depressed layer years after years, the whole terrain of Huizhou contained both high mountains and deep valleys that coexisted together. Huizhou is mostly humid and among subtropical monsoon climate area, it used to have four distinct seasons, short in spring and autumn while long in summer and winter. Thanks to the abundant rainfall and humid climate, Huizhou's river network densely surrounded the territory of Yellow Mountain. Due to 70% of mountain area, it is difficult to impound water and the land is often vulnerable to floods. The overall percentage of the land is so small, only 5% and not suitable for food production. Although the land is not good for food growing, it is beneficial for tea, medicinal plants and rare trees growth. As surrounding high mountains which is difficult to navigate, people migrated to Huizhou to avoid wars.

The valleys between mountains provided a favorable habitat space for the formation of villages, making most Huizhou villages relatively isolated from the outside world. This natural

environment created a long term and stable environment for migrants to live, and kept Huizhou villages from being destroyed by wars and decreased the possibility of losing the essential characteristics by other invading cultures.

The abundant rivers provided opportunity to move goods down the river **(Figure 6)**. That was why the names of "Huizhou merchant" grew rapidly. From Huizhou, they sold salt, bamboos, teas, Xuan papers, silk and ceramic pots etc. Huizhou villagers found their own living way when they were in the mountains.

2.1.2 Natural views

Figure 7 Households by lake Tai, Drew by Guanzhong Wu, 1919-2010, Replica, ink and color on paper

Figure 8 Entry view of Hong Village

As the basis of founding a Huizhou village, natural scene cannot be ignored. For Huizhou villages, the natural environment and the villages has a Figure-Ground[13] relationship **(Figure 7)**. This relationship is a vital part of the characters of Huizhou village. What is more, people from Huizhou village used to give special meanings to the combination of natural scenes and villages layout. The organization of their village were built upon the variety, complexity and the balance between natural scene and the construction that villagers created. Take Hong Village as an example **(Figure 8)**, it locates close to Yellow Mountain in Anhui. This village contains eight features in natural views. However, the founders tried to rebuild those natural views by adding human thoughts and recognitions during design and construction. They created a completed water system by ditching and ponding to bring river water into this village. Thus, the whole village was surrounded by water, those views became even more beautiful because of adding the water.

Figure 9 Xidi Village in Anhui province, 2010

[13] Figure-ground relationship: Known as identifying a figure from the background.
Schacter, Daniel L., Daniel T. Gilbert, and Daniel M. Wegner. "Chapter 4: Sensation and Perception, Vision II: Recognizing What We Perceive." Psychology.; Second Edition. N.p.: Worth, Incorporated, 2011. 149-50. Print.

2.2 Spatial characteristics of Huizhou Architecture

2.2.1 Geomantic site selection

The people of old Huizhou were mostly large families of ancient Chinese aristocratic gentries which have strict feudal hierarchy. They lived together and prospered by hard working. Those villages were named by different clans and built on “Feng-shui” and “Yin et yang” theories. Geomantic considers a best site that has hills at the back, water in the front and sand hills on both sides to an appropriate site for a good meaning of protection **(Figure 9)**. The overall environmental selection aimed to find an ideal Feng-shui land so that the clan can grow prosperity and be well-developed. The combination of naturally environmental spirit and the fate of tribe gave the land a humanistic significance. From architectural point of view, having hills at the back is beneficial for blocking the warm air, and having the water is good for growing food and provide potable water.

The formation of Huizhou villages is based on the hills’ location and the shape of the rivers. They have two main shapes of composition, “Massive” and “linear” **(Figure 10)**. Massive village usually locates in alluvial plains which were flushed by primitive river systems of Huizhou. Linear villages were built along mountain ridges or riversides. When several distributaries went through villages, the expansion of villages usually went along those branches. No matter which shape a village is, it always looks like an animal body. Sometimes it looks like a fish spine, sometimes is a cow. People believed that creatures survive for a reason which needed to respect and learn, which is why the villagers always found a village based on the shape of an animal.

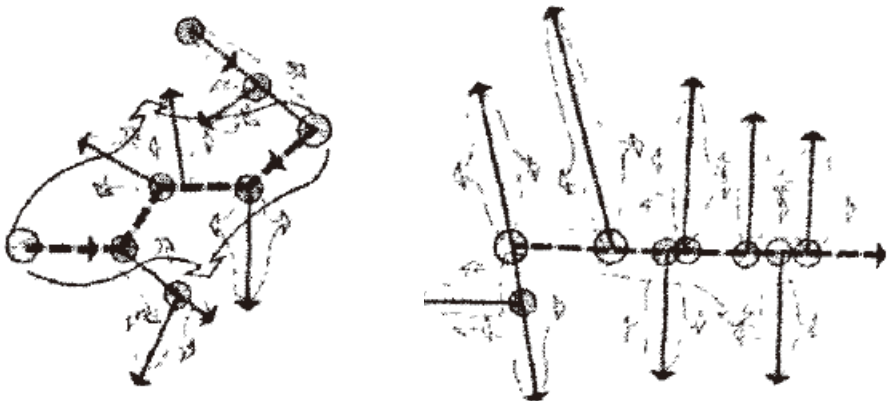

Figure 10 Massive & Linear styles of village layout

2.2.2 Strict family ritual

From North to South in the history of China, there were three times of massive migrants – the Jin dynasty, the end of the Tang dynasty and the Southern Song dynasty. Each migrant was under a times of dynastic shift when people suffered in wars. Many prestigious families who chose to move to south for more safety chose this isolated environment in Huizhou. Because most of Huizhou villagers were moved here with families, strong kinship connection became the feature of ancient Huizhou villages and the blood relationship was the main link among villages that led the them to develop. Many clans were built up at that time by uniting every family member with the same surname together and created the social organization. The central authorities of a clan were composed by people who had noble character and high prestige, usually the men who was the oldest in the village, and the leaders' sons were asked to control kinds of important business to keep the clan living. Clans which were close to each other often helped mutually in business, so they usually got along well with neighboring villages and some single-surnamed villages were merged together as a larger scaled multi-surnamed village.

Huizhou villages are the main carrier of Huizhou culture, it embodies the nature and humanistic factors in Huizhou. Huizhou villages contains not only general living pattern of rural settlements, but also its patriarchal rules and regional architectural characters. These characters make Huizhou villages outstanding among many kinds of rural cultures in Chinese history. In 2000, the two historic Huizhou villages – Hong village and Xidi village **(Figure 11)** were listed in the World Heritage, which is the only ancient villages that had ever been named.

The existing historic villages currently are heritages from Ming or Qing dynasty. During that times, traditional Chinese society respected highly the clan system in Huizhou district (**Figure 12)**. The clan hall usually is the place for events such as political meetings and cultural activities. Everything that matters to the whole clan would be discussed in the clan hall. It also stands for the spirit of a clan and a symbol of a big family.

Figure 11 Exterior view of clan hall in Hong Village, 2010

Figure 12 Interior view of the clan hall in Hong Village, 2010

Therefore, the rise of Huizhou villages not only introduced an iconic way of regional sociology, but also affected the architectural styles. It is a great academic value and practical significance to understand Huizhou villages from the perspective of cultural and architectural.

Figure 13 Memorial arch in Xidi Village, 2010

2.2.3 Memorial arch and “the gate”

As a sign of the village or a common community space, “memorial arch” becomes an important architectural element to show the majesty of a clan in Huizhou villages (**Figure 13**). All the other architectural elements, such as clan halls, have practical functions, except for memorial arch, the biggest common point comparing to a practical architectural element is the square door of the memorial arch can be walked through. Although no physical value, a memorial arch still has its meaning in spiritual. Archways belong to monumental buildings which are used to memorize merits and feudal morality, especially for women in the villages. To show better to the outsiders, archways are always placed at the entrance to a village or a clan hall.

Figure 14 Two shapes of gates in two Huizhou villages

Passing through the memorial arch, there is another spatial element which is called “the gate” (**Figure 14**). The gate used to be used for protecting and securing the villagers during a war time. It usually has two floors, the lower floor is open to public to enter the village while the upper floor is enclosed for monitoring the entrance. Sometimes people put weapons in the upper floor just for enemies and offenders. Now the gate plays a role in introducing the views from further scene and compose a new view within the gate boundary.

Besides “memorial” arch and “gates”, Huizhou villagers often built ponds and circular embankments to support the Feng-shui spiritual meaning which is “gaining golds from aggregated water” (**Figure 15**). They also planted fruit trees around the water system to create some landscape for villages and bring economic profit at same time.

These elements are main methods to define the boundaries of the village. They guide, defend and secure the villages. They balance the layout of site and provide certain areas for public activities. They are the connecting point between inner spaces and outside spaces.

Figure 15 The pond at the entrance of "Hong Village"

2.2.4 Streets, lanes and ditches

Streets and alleys are the skeleton and support to ancient Huizhou villages which play a vital role for traffic and communications accompanied with commercial activities. Also, the spaces created by streets and alleys contains a lot of information of Huizhou architectural characters. For example, people will feel constrained when walking on a street which has high white walls on both sides (**Figure 16**). The first floor of the architectures will usually be the commercial stores that can have access from the street. There will be a public playground space when passing through a street (**Figure 17**). People who built up those villages were mostly for avoiding wars, because of this, many circuit streets sacrifice the convenience of traveling for more safety. This is on one hand has something to do with Feng-shui, on the other hand showing the residents' precautious awareness for need for safety. The streets and alleys are linked with each other and nearly identical. From main street to alleys, the changes are gradually from open to private.

Figure 16 Ally in Xidi Village in Anhui, 2012

Figure 17 Main street in Xidi Village in Anhui, 2012

CHAPTER 3

SITE ANALYSIS AND BUILDING PROGRAM

3.1 Understanding the site

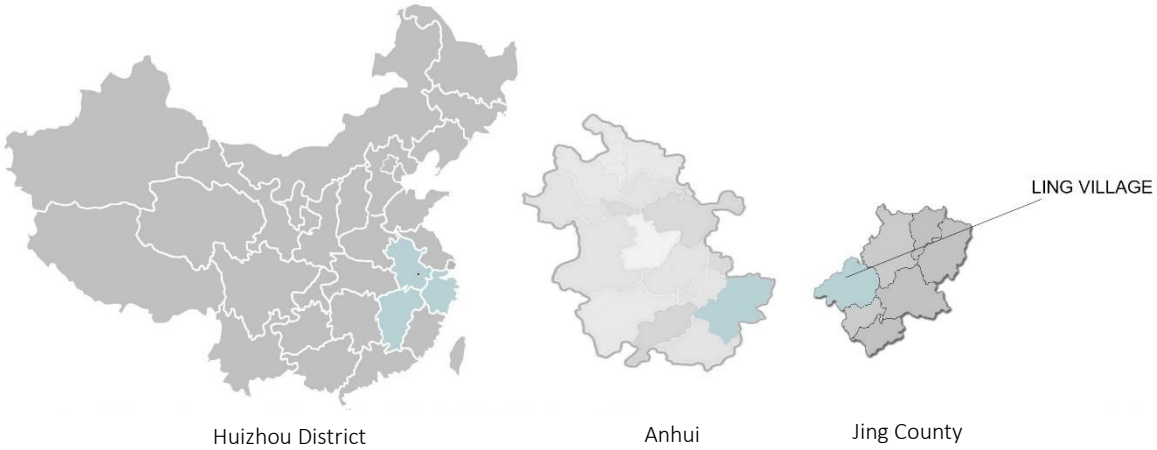

Figure 18 Site location

3.1.1 Natural environment

Ling refers to a group of 13 villages where located in the west of Jing County, southeast side of Anhui province with the area of 22.5 km² in China (**Figure 18 & 19**). Those 13 villages are linear distributed in a long and deep valley of a mountain called Fangjia. Belonging to the north subtropical monsoon climate area, it is perennially mild. The village gets little sunshine because it is shielded by the mountain and has a lot of rainfall annually (average annual rainfall of about 1500mm). Along the valley, there is a distributary of Qingyi River which provides an additional water source. When storms came, there were a lot of flood. Because the Qingyi river diverted the flood water, the village could survive. The natural environment is not suitable for food growing in Ling, which means most grains need to be purchased from neighboring villages or further districts.

However, there is one kind of tree named Wingceltis (Pteroceltis tatarinowii[14]) which grows in a large amount in Jing county and its bark is one of the best raw material for making Xuan paper.

As Huizhou villagers, the founders in Ling also complied to Fengshui to build up their homes. According to Fengshui theory, having a high mountain at the back and the water source at the entrance of the village can bring the best fortune to the residents. Indeed, the mountain behind provides the site for growing Wingceltis trees, which became one of the materials of Xuan paper, the distributary on the site offers a water source for using during the process of making paper

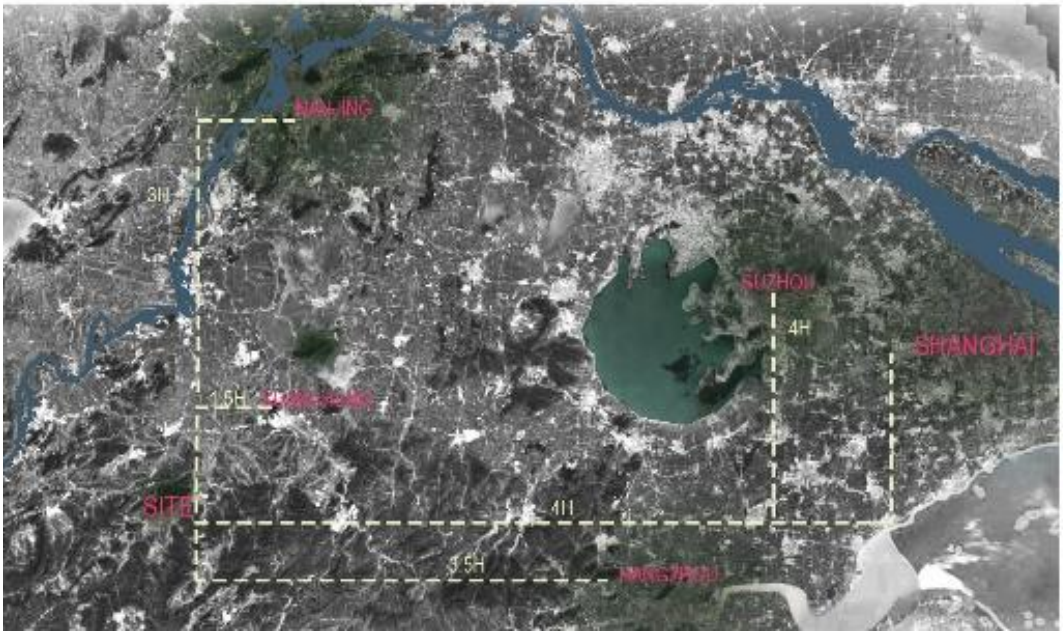

Figure 19 The distance between large cities and the site

(Figure 20). Because of the environmental advantages, people in Ling found their own way to survive.

Ling's founders who built up the 13 villages used to live in Xiawan, which made it the center of the group. Then Xiawan was expanded linearly along the distributary. Most buildings are placed on the west side of the valley. There are 5 meters (16.4feet) dispersion between the buildings on

[14] Pteroceltis tatarinowii Maxim is the unique species in china, it has long history of planting and has great value both on landscape and making paper. – http://www.ceps.com.tw

the west side of the river and the buildings across (**Figure 21**). The two sides are connected only by a simple constructed bridge which made the buildings across somehow isolated from the village. Long time before, the buildings were used by the elders of Clan Cao to live, the elders occupied the highest site of the village so that it was easier and clearer to oversee the condition of their clan. Moreover, the high places contain best meaning of Fengshui and the higher the elders live, the more important their positions were among the clan.

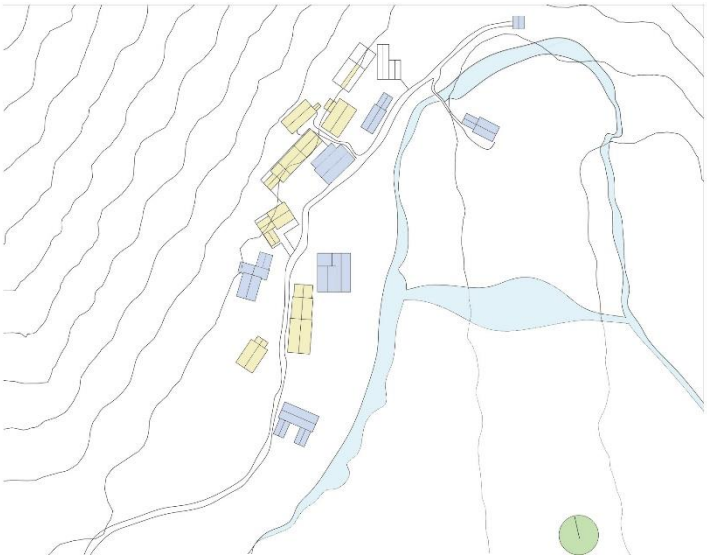

Figure 20 Existing site plan

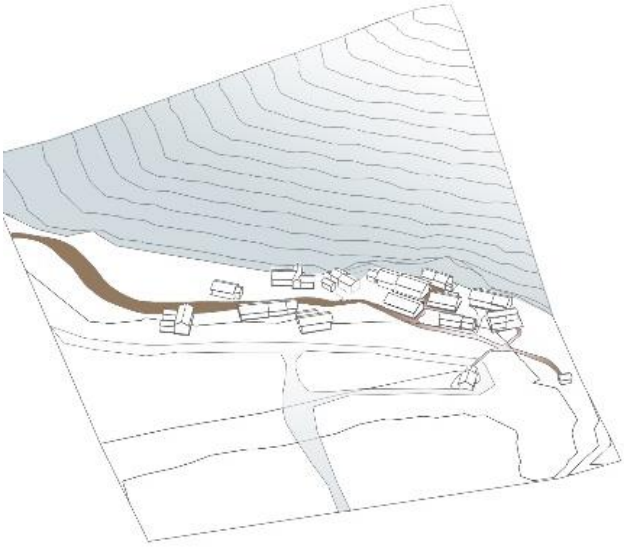

Figure 21 Site conditions

3.1.2 Infrastructures

People who currently live in Ling are mostly descendent from ancient Clan Cao. At the most prosperous period, Ling used to have more than 3,000 villagers in total. However, because their modernized improvement is falling behind, the village gradually lost youths and labors. Most of them left the village to larger cities. From 1986 to now, the population of the 13 villages reduced to less than 1748 permanent residents in total with the floating population of 200. Most of them are women and elders. It is now a village that produces 350 tons of Xuan paper a year, but only

less than 100 people. Xiawan is one of the villages that only contains elderly residents right now. It used to have 17 big families with over 100 people. Now it onle has less than 30 people. There are only 6 young men in the village and 4 of them are unmarried. Lacking connections to modern society and lacking labors made Xiawan fall behind its neighboring villages of development, and even in the whole province of Anhui.

Figure 22 View of the village of Xiawan

There is only one main access to Ling which is a road of 4 kilometers (2.5 miles) long (**Figure 22**). It used to be gravel and had many twists and turns, which offered no access to modern

Figure 23 The relationship between the Ling and the County Jing

vehicles. All goods and materials were carried by horses. This situation was improved when the Local government of Jing County decided to renovate this road in 2006 by funding 120,000 Chinese currency (20,000 dollar) per kilometer for concrete paving. After the road was built, Ling finally provided access to vehicles and had the opportunity to develop their paper business outside. Nevertheless, not every village could have roads for vehicle. Like Xiawan, people who live there are still going home on foot. Most walkways of Xiawan still made by gravel and hard to walk on, which brings the village more difficulty to connect to the outside (Figure 23&24).

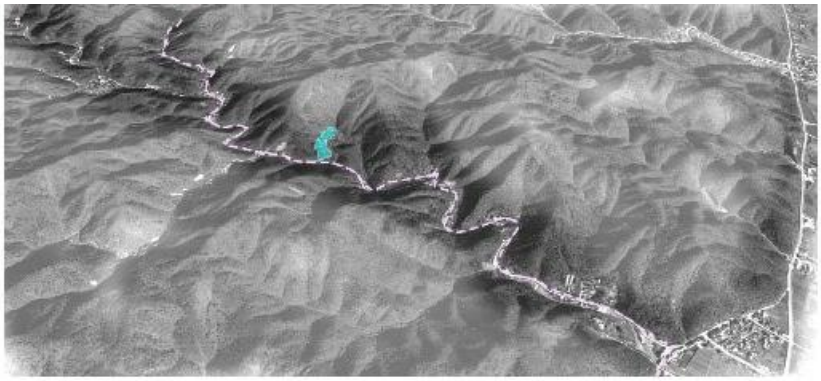
Figure 24 The location of Xiawan

Xiawan has no municipal facilities for water system. People still maintain their traditional ways by using big vats to store water. There used to be two main sources for water gathering , the Qingyi River distributary and the spring water coming from Fangjia mountain. Both of them were potable and abundant for villagers to use. Nevertheless, because of the global climate change years after years, every winter in a year, the river in Xiawan will run through a period of low water

deficiency. Although the river water is still enough to daily use comparing with other river distributaries in Jing County, it is not clear enough for drinking. Xiawan's villagers gradually abandoned it and only drink the spring water. Meanwhile, with the increaing demand for modern lifestyle, such as modern furnitures and mechanical systems, villagers started to connect plastic pipes by themselves to create their home water systems. They connects one pipe to the mountain spring water for drinking and connects another one to the river for drainage. They also use concrete or brick to build up water sinks and use Wingceltis tree branches to build simple lavatories. Because people in the villlage did not discuss how to build the system together, the water systems in the whole village is in much chaos, and exposed pipes and disorderly sheds are easily seen when you walking through the village.

The same situation happens to the electricity system. Although the electricity network was improved by the local authorities after years since 2006, due to lack of management, the previous electricity network was modified by the villagers instead of professional engineers. Even worse, the random modifications, for example, drillings for running the pipes could destroy the completeness of the exterior walls of some historic buildings, which will cause serious damages to some valuable architectures of this village.

3.1.3 Culture and history - source of Xuan paper

Xuan paper, along with writing brushes, ink sticks and ink slabs, are known as “the scholar’s four jewels”. Xuan paper is soft in texture but strong and durable with a high saturation capacity, which is perfect for conveying the spirit of Chinese calligraphy and painting. It also has a reputation as “Paper that lasts for a thousand years” without ink fading[15]. Xuan paper hails from Jing county, Anhui province which was once the jurisdiction of Xuanzhou, that is why it was named Xuan paper.

The folklore says, ever after Cai Lun’s death in 121 A.D. – the East Han Dynasty, his disciple Kong Dan was making paper in the south of Anhui, and he wanted to make a kind of white paper and draw a portrait for his teacher. Later he found a very old Wingceltis near a valley, after years of washing, the tree bark turned to white long fibres. That was how Xuan paper appeared. Actually Xuan paper, dating back to 1,500 years, was found in the record of the Tang dynasty in the “Notes of Famous Past Famous Painting”, “New Tang Book” etc. Xuan paper became popular in the Tang dynasty[16]. According to “The Old Tang Book”, in 743 A.D., the dominators of Jing County, south of Anhui and east of Zhejiang all paid tribute to the emperor with papers, among which the paper from Jing County was most exquisite. A poem in the Song dynasty gives a glimpse of its value, “If you have enogh money, buy Xuan paper instead of gold, for its smooth surface looks like the clouds in full spring”. Also, because the emperor in the Tang dynasty paid more attention to collect poems and paintings, Xuan paper went through a period of great prosperity at that time.

[15] Lei Zhang, <China Daily>,10/26/2012, pg. 26
[16] Lei Zhang, <China Daily> ,10/26/2012, pg. 26

Figure 25 The house of Dasan Cao which are under demolition

In the late Song and the early Yuan dynasty, dating back to approximately 1,000 years ago, A rich man named Dasan Cao, with his family came to Ling to avoid wars, which was revealed in the preface of his family of genealogy. (**Figure 25**) He decided to shift their livelihood from agriculture to make paper because the environment in Ling was not suitable for growing food, but good for planting the materials to make Xuan paper. Since then, more than 700 years, with the effort of producing best quality of Xuan paper and dedication to run the business, the core technology of making Xuan paper has been taught only within the village of Ling and was inherited by the generations of Cao. Cao and his family became expert performers in paper industry and even monopolized the paper operations for quite some time[17].

[17] Lei Hu, <Traditional way of making Xuan paper in Village Ling>, <Journey>, 1994-2015 China Aacademic Journal Electronic Publishing House, pg. 70-75

After the establishment of the Yuan dynasty, the north and south had been united and the economy and culture was restored. Some famous painters at that time broke the constriction of traditional court painting method (colorful) and advocated to mountain-water-freehand style which calls for more monochrome with simple colors of white paper and black ink. Xuan paper in Ling provided a broad platform for being creative in this method and got further developed and improved rapidly. (**Figure 26&27)** With the maturity and varieties of art and craft, the manufacture of Xuan paper in Jing County entered in a significant period from Ming dynasty to the early Qing dynasty. The Cao family in Ling had an unprecedented prosperity in the paper-making business. However, in the middle of the Qing dynasty, during years of wars between Taiping Rebellion and the Qing Army in the province of Anhui (1858-1861)[18] , when the raw materials for making paper became desolate and the transportation of Xuan paper was almost stagnated, Ling went through its darkest period, it took decades before it fully recovery. In the late half of 18th century, Xuan paper in Jing county started to draw some attention from western countries. In 1915, Xuan paper

Figure 26 Traditional way of boiling the material for making paper

Figure 27 Traditional way of pulling paper from the pulp

[18] Heath, pg. 16

in Jing county won a gold award at the Panama-Pacific International Exposition in San Francisco[19], held to celebrate the opening of the Panama Canal the previous year. After that, Xuan paper was introduced in the U.S. and some European countries, the annual output of Xuan paper was almost 1,000 tons at that time.

During the period of Second Sino-Japanese War, the sale channel of Xuan paper was blocked and the production was totally paused until the establishment of the New China. The new government made significant efforts to promote the development of Xuan paper industry. In 1951, the local government of Jing County organized numbers of craftsmen to restore the process of production and set up a committee to run the recovery. After that, the committee was named several times because of the form changing from "Xuan paper Factory of Jing" to "China National Xuan Paper Corporation". With the advantage being supported by the local policies, until 1980s, there were more than 40 factories in Jing county that were making Xuan paper and Jing county became the national center that running the business. The demand for export and domestic sale was fast growing which caused discord between the traditional process and the commercial process of making paper. The mass production takes less steps of making paper, however this means more chemical elements added, such as using lime powder as bleach and artificial glues for ropiness. After the process, the produced paper has lower quality. Even though, many factories still chose the profit by introducing large machines for mass production and shrank the procedures of traditional ways. Since then, the traditional craft industry was gradually forgotten and meets its enormous potential of distinction.

[19] "China Daily", Lei Zhang, 10/26/2012, pg. 26

From cover to cover, Village of Ling was the central part that experienced the whole history of Xuan paper development and it indeed is the source of Xuan paper. Because of this, during the industrial revolution which big machines replaced handicraft, Ling is among the few villages that insisted on keeping the traditional ways of making paper. The villagers in Ling chose to keep their historic treasure and the inheritage from their ancestor that making the best quality of Xuan paper. They kept the old procedures and lived a secluded life, trying not to be assimilated by the outside.

What makes Xuan paper from Ling so different from that in other places? The first and most would be the source of water. In Jing County, there are 146 rivers as total, which offer a wealth source of water for making paper to different villages in Jing County, including Ling. Besides, the water quality is very good in Ling than the other places which can create high-grade Xuan paper. For example, there are two river distributaries of the upper reaches of Wu river in Jing, one is alkaline which suitable for processing the raw materials, the other is acidic, which is suitable for soaking materials to become paper. As to Ling, it has not only one vital distributary from Qingyi River, but also the spring water coming from Fangjia mountain. These two sources of water provide a best natural condition to make the best paper than other villages in Jing County. Moreover, four distinct seasons and 250 days in a year of frost-free guarantees the materials from not being deteriorated or rotted by severe solarized or frozen. Therefore, the natural condition in Ling is significant beneficial to make Xuan paper.


Figure 28 Wingceltis tree

The second specialty would be the materials for making paper. There are two main raw materials besides the water source, one is the bark of wingceltis trees (**Figure 28**), the other one is the Shatin straws. Based on Ancient Cao's method, an exquisite technique of making process,

the paper made from Ling usually is thinner but more durable to ink than any other kind of Xuan paper in the country. Also, because of the environmentally friendly making process, it is amazing to see that even almost a thousand years passed, the water source is not polluted by making the paper and people still self-sufficiency on the materials for making Xuan paper.

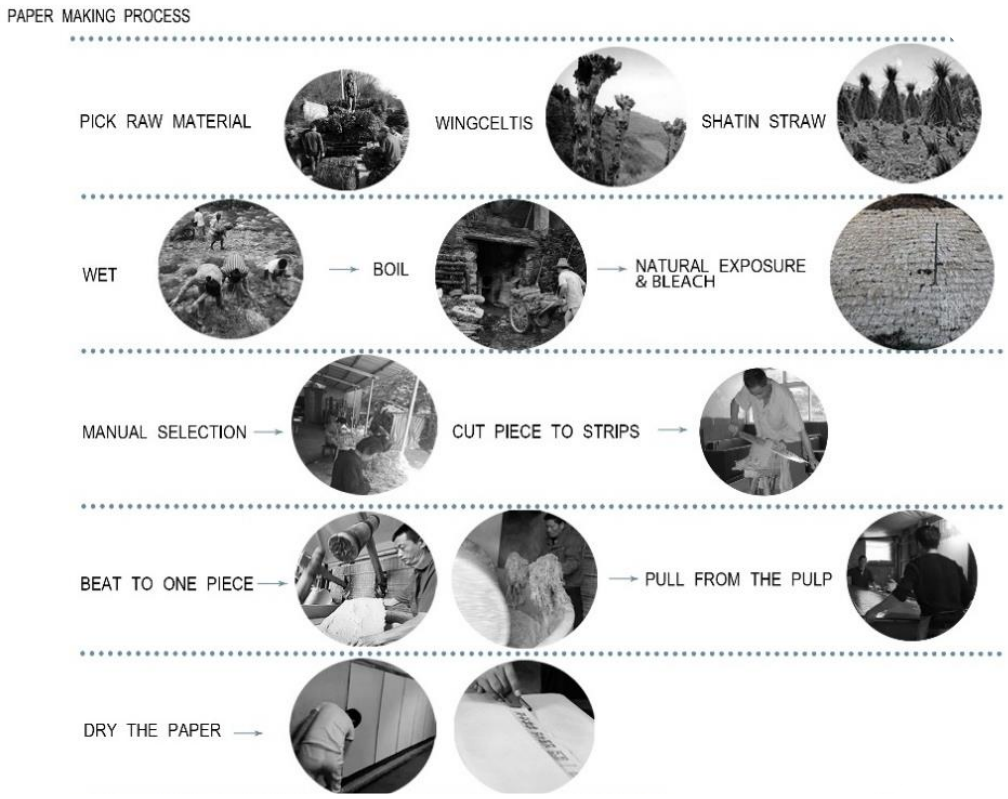

Figure 29 Paper making process

Last but not least, the people from Ling village with the spirit of preserving the traditional handicraft is most significant and respectful to keep this village special. From 700 hundred years to now, even in the period which Ling's name was so famous, Ling's villagers always kept their traditional way of making paper, humbly and hardworkingly. The traditional way of making paper mainly contains the following steps (**Figure 29**):

1. Cut down the tree bark from wingceltis and mix them with certain percentage of rice straws, wet them until they are soft, they called them paper grass.
2. Bleach the material by naturally exposed the soft grass to be fully whitened and dry.
3. Manually select out of grass which are not whitened, get rid of the grass which are not whitened

Figure 30 Paper grass exposed on the hill

Figure 31 Workers making paper in a large factory

Figure 32 A woman checking on dried paper in a home-made workshop in Xiawan

4. Crunch and beat the grass to chunk and mix with water.
5. Add abstract of aspen vines as a glue, then make it to paper pulp.
6. Pull out a flat sheet of the pulp and dry it to a piece of paper.

During the process, the raw materials need to be exposed under the sun, wetted by rain water and the procedure needs to be repeated back and force until the materials absorbed enough water. Then the materials need to be steamed in a big pot and drowned in the water. The entire process usually contains more than a hundred procedures and takes more than a year to finish. People who used this kind of Xuan paper would never get used to other cheaper paper, they called the paper “The real Xuan paper”. With respect to the nature, Ling’s villagers

never use chemical or artificial elements to help them do the process, even this way would make the entire process much easier and be more productive.

All people from Ling village are living on making paper, each person is an important part of the big producing chain. Making Xuan paper is the most interoperable among Chinese traditional handicraft art. Hundreds of procedures need tens of people working together to make it through. Even it is not easy to run this business nowadays, people from Ling consider the traditional handicraft as the heritage from the founders and it needs to be propagated.

3.1.4 Obstructions of protecting Ling's traditional handicraft

Nowadays, with the fast pace of modern life, increasingly demand for paper usage causes the need of the mass production of Xuan paper. Although people in Ling decided to reduce and improve some procedures, it was still difficult to keep up with the growing demand. It is a period which innovation is needed when some workshops in Jing County started to make paper by using bamboo fibers as the replacement of wingceltis tree barks. This kind of paper can only last for 20 years. Although using bamboo fibers can make the process short but the quality was not as good as that with the tree bark. It brought a certain negative impact on Ling's paper production.

What is worse, some home workshops which pursue high quality cost more time and labor than some large factories which gradually draws less attention of buyers. This obstructs the

Figure 33 The picture of villagers in Xiawan

Figure 34 A senior couple in Xiawan

development of Ling to some degree. Within late fifteen years, as the main paper factory of Ling, Red-star, closed due to high pressure of debt and low income. Real Xuan paper began to face a severe problem of development. Different from other traditional villages, Ling made its living only by selling Xuan paper. To this village, making paper is not just a business, but a heritage which needed to be prosperous by generations. Ling's people tried to fight for their precious history and culture, but with the increasing improvement of modern technologies of making paper, the entire process is running away from its traditional way and the number of people who know about traditional process is reducing. Nowadays, 90% of Xuan paper from Jing County is made by modern technique (**Figure 33**), which means the crisis for Ling not only comes from other cities' crush, but as well as from its own area. More and more youths chose to leave their homes for other job opportunities in big cities because of less income and poor living condition which also accelerated the losing the traditional craft and causing the phenomenon of Hollow Village. Thus, the real Xuan paper gradually disappeared out of our view, and because of not following those workshops, the development of Ling village was crushed by the modern production technique.

3.1.5 Challenges that the village are facing

There are advantages for Xiawan to be developed, but there are also some challenges that blocks its way of development. Historical villages present the character of relatively completeness and continuity during their development in history. The richness, profoundness and the uniqueness show the conditions of these valuable buildings in each period of the buildings' history, and the information also reflect the social and economic situations, cultural and philosophical perspectives of a village.

The people who are still making Xuan paper are less than 30. Most of the remaining villagers are seniors or women and children **(Figure 34).** Due to lack of labor, the development is falling behind, the contemporary life style failed to reach this village. The site I chose to design has the worst geography and the least numbers of buildings. There is no water system or utilities. Besides, the buildings that keeping the history of the village are vanishing. There are other consequences due to above problems. The poor living condition caused people to leave, it became a vicious spiral.

3.2 Architectures in Xiawan

Because of being block from the outside, most buildings of Xiawan have the chance to maintain the original appearance, which is why those buildings contain a lot of historic value. Fortunately, the small number of population keeps villagers from dismantling original buildings to build new ones. It is hard to define the buildings by only looking at their functions because they

Figure 35 Three buildings connected as one house in Xiawan

are mostly residential areas. And they are changed through history. Although some of them were used to be workshops, dating back to Ming and Qing dynasty, those workshops are still in a home-made scale. Now, most workshops are changed the building functions to residence and villagers

Figure 36 Kitchen area and the living room in a house in Xiawan

start to connect single building together as one house (**Figure 35**). Inside the connected buildings, people in the village divided the spaces to living room, kitchen and bedrooms. Most of spaces do not have the function of bath or restrooms. Villagers use bamboos or small wood strips to enclose the private spaces, leave the public space open. Usually kitchen is designed in the living room because in winter, people need to burn firewood to provide warmth, so they combine the fire system with the cooking system (**Figure 36**).

The houses in Xiawan is a little different from traditional Huizhou architecture, they have less layers of shear walls and only simple slope roofs. Only one memorial arch is placed at the entrance of Ling, no arches is placed in individual village entrance.

Due to the phenomenon of hollow village, most of the old buildings in Ling were abandoned and out of repair. Take Xiawan as an example, most historic buildings which containing Huizhou styles were collapsed and left in no repair. On the other hand, the requirement of modern technique and living quality that call for larger spaces and contemporary utilities caused many arbitrary constructions near the old buildings.

Figure 37 The addition looks inharmonious with the existing building

Looking at Xiawan, the buildings there are arranged in a banded shape, and there is only one main road running through the whole village, which make the village looks like a fish spine. Biggest bone is the main road, and all the other small paths that connecting to the spine are the village's lateral ribs. After years and years changes, the current buildings are both existing and added, diminishing, the new and the old are combined. From this condition, we can see that the villagers have the aspiration to fix the poor conditions of the buildings, but because of lacking professional knowledge about traditional Huizhou architecture, the fixing usually became inappropriate to its environment.

CHAPTER 4

LITERATURE REVIEW

4.1 “Genius Loci” and its new application

“Genius Loci”, as "spirit of place", refers to the "character" through which a specific built environment describes itself to "be-in-world". The theory, spirit of place, proposed by Christian Norberg-Schulz in the field of urban architecture, in the 70s, is based on historical research and discussions on how urban space concretizes human "dwelling". Speaking of *“Genius Loci”*, the greatest experience is that Norberg-Schulz considers architecture as a high artistic level that aims to satisfy people’s spiritual needs. He explains the general concept of what is “Genius Loci”[20]. It basically contains the following four factors:

1. “Architecture means to visualize the ‘Genius Loci’, and the task of the architect is to create meaningful places, whereby the helps man to dwell.”
2. “Existential place is not a logico-mathematical term, but compromises the basic relationship with between man and his environment.”
3. “Dwelling implies something more than shelter. It implies that the spaces where life occurs are places, in the true sense of the word.”
4. “After decades of abstractive ‘scientific’ theory, it is urgent that we return to a qualitative, phenomenological understanding of architecture.”

Martin Heidegger, who was a German philosopher, made important contributions to a concept of truth. He implied that art is a site of the revelation of truth, a philosophical

[20] “Genius Loci, Towards a phenomenology of architecture”– Christian Nordberg-Schulz; pg5

understanding of “house of being”. He lists a lot of concepts, "ambiguity, death, temporality, nothingness" and other more abstract terms, but many have occurred in the concept of “Dasein in everydayness”[21]. He argued that Dasein is defined by Care, which is mainly about how every tool, or implement, has its meaning by communicating to those subject to get the sense of "being-in-the –world”.

“Truth is something whose very nature can only be understood by living through a life."[22]

Heidegger proposed that any "phenomenon" must occur outside the purely empirical experience of space. Thus, Heidegger gives a definition of “space”, a place that a person lives and knows throughout his lifetime. Although connected to Heidegger in some way of defining a space, Schulz develops his own idea in this field. He changes the recognition of architecture from the entity level to psychological cognition level. The building no longer exists in isolation, but rather encloses nature and humans who live in this land and see the historical change of buildings. More importantly, Schulz changes the meaning of the word "building" that including the quality of “spaces”. He explains that a person needs symbols and transitions which represent different life-situations. A space should comprise the basic relationship between a person and his environment. The space seems more suitable to use as a dwelling, which implies something more than “a shelter”, but has a distinct character that can represent its spirit. Thus, architecture is described

[21] “Being and Time” – Martin Heidegger; pg59
[22] “Husserl and Heidegger on Human Experience” - Pierre Keller; pg. 9-10

by Schulz as an object to visualize the spirit of a space and architecture's task is to create meaningful places to help people to dwell.

"The buildings bring the earth as the inhabited landscape close to man, and at the same time place the closeness of neighborly dwelling under the expanse of sky."

Since the theory was published, a lot of controversy emerged within the field of architecture. Even today, people are critical to this combination, but as the very first man to combine architecture with Heidegger's philosophy theory, Schulz is undoubtedly groundbreaking. Also, the theory, "Genius Loci", helps to clarify the concept that environmental space is no longer an abstractive word buy became more practical. Schultz describes the meaning of architectural spaces which needs to be explored based on their environment. He says that, "The character of a place denotes the general 'atmosphere' which is the most comprehensive property of any place."[23] It means that, the three-dimensional organization of a space can make it become place. Though architecture is always shown alone, but it stands as the existence of natural environment, this made the "spirit of a place" concept meaningful.

Norberg-Schulz considers architecture as a high artistic level that aims to satisfy people's spiritual requirement. He reflects a belief that we are losing the concrete environmental character, but a very quality that affects architecture is human identification to the spaces which provide a feeling of existential foothold.

[23] "Genius Loci, Towards a phenomenology of architecture"– Christian Nordberg-Schulz; pg11

4.2 Human behavior and the environment

Schulz suggests that the environment influences the people who need symbols to represent life-situations. This concept relates to part of the reading "Inquiry by Design"[24], which introduces the study of neuroscience on human behavior. The author, John Zeisel says that the places that have the most meaning for users and the places with culture value can inspire deep meaning to users who use these places. Meanwhile, these places can stimulate the memories of the users' past through personalized environment and reinforce a sense of who we are[25].

It is instructive to know that people seek for self-recognition by sensing the environment which looks familiar to them. It is a basic need for people to experience spaces as meaningful. Schulz reflects a belief that architecture is human's identification to the spaces which provide a feeling of existential foothold, which is the personalization that people engage to make a place our own to express our past and aspiration. It is a new paradigm to discipline the environment behavior studies, and there are four topics to form the core theory: Meaningful place, Personalization, Territory and Wayfinding[26.]

4.2.1 Meaningful places

A meaningful place is the most fundamental concept in this study. There are three levels of spaces that describes the meaning to people. The first one is called non-semantic space. It means a space that we had used, but we will not remember. For example, a street corner which

[24] "Inquiry by Design" – John Zeisel; 2nd pg of Chapter 14
[25] "Inquiry by Design" – John Zeisel; 2nd pg. of Chapter 14
[26] "Inquiry by Design" – John Zeisel; Chapter 14

we pass by but will barely be familiar with[27], because they never have any connections with our personal lives. The second one is called semantic spaces. Disney Land may be a good example to describe it. When people say the word "Disney land", it immediately generates a common cognition of what Disney land means and what is in that space. The third one is called elaborative semantic place. It is embedded with personal meanings, for instance, our home or the kindergarten of our childhood. The last two kinds of spaces are researchers' preference for generating the study of what spaces hold for deeper meaning to people.

4.2.2 Personalization

Architects devote themselves to make a space of our own which reflects our personalities and aspirations. It is not only because we feel good in our own territory, but also the memories of our past define ourselves who we are. Personalized environments that express who we are to the outside world also cue our memories and feelings about ourselves. Neurologist call these cues: Environmental personalization memory cues.

4.2.3 Territory

Territory means a skill that related closely to the place recognition, which is a neuroscience concept of environment-behavior. Environment-behavior scientists need to find out how human brains process territorial information to help them understand better to the importance of territoriality and how brains provide aid in defining the types of territorial makers that work best for people who come from various culture.

[27] "Inquiry by Design" – John Zeisel; Chapter 14

4.2.4 Wayfinding

Finally, wayfinding describes the mental and physical activities associated with finding the way to food, to avoid predators, and get home to safety.[28] Neuroscience uncovers which wayfinding cues can hold greater meaning for humans and have greater effect. Such spatial abilities can help designers more effectively to consider the environment for wayfinding.

4.3 Finding historical meanings of architecture

"Genius Loci", the spirit of a space, represents the feeling of the people who experienced meaningful places by seeing through familiar characters of an area. The purpose of architecture is to keep and transmit its meanings. Growing on different lands and belong to different nationalities are very important towards a person's memory, but in addition to the physical properties, there is a higher level, which is the feature attached to memory existing in those people's mind, is depending on the presence of unique forms. A specific place, which carries the history of this three-dimensional space or a record of time changes, is more important to be focused on, no matter previous or present. The reason to consider it is that modern architecture needs to build up based on this theory.

Take China as an example, during fast pace development of our country, especially in capital cities, some architects are losing patience to follow the context during designing, more irrational designs lead to the decline of city characters and the demolishing of historic buildings causes the loss of cultural contexts in urban areas (**Figure 37**). A kind of blind admiration to high technologies towards architecture reflects lack of meaning of existential (**Figure 38**) We cannot

[28] "Inquiry by Design" – John Zeisel; Chapter 14

expect people to realize the historical meaning of those places when looking at a new building. Because of this, a lot of people starts to call for the protection of those buildings which are meaningful to people's memory of history and culture.

Today, the word "meaningful" is popular in some urban cities such as Beijing and Shanghai. People prefer to see architectures which contain special historical or cultural meaning (**Figure 39**).

Figure 38: The modern building, National Center For The Performance Arts, locates among a series of traditional historic buildings

Figure 39 The bubble latching onto the side of the old hutong building image © Fang Zhenning

Because of the recognition of protecting history and traditional culture, increasingly constructions in a way show the respect of traditional appearance.

Therefore, it is significant to develop a useful theory to give the methods to create spiritual content during design a building. The theory of “Genius Loci”, based on the pre-modern civilization and phenomenology-oriented, is limited in a literal level and is isolated from practical world. The meaning of “built based on the environment” is hard to be presented. Because of this, the "the spirit of place", through analysis of present cities and architectural practices, needs to be redefined to provide a way that can change the designing attitude and optimize design methods.

Figure 40: A renovated quadrangle courtyard shows the combination of the new and the old

4.4 Peter Zumthor and his spiritual expression

When we visit Peter Zumthor’s architectural projects, there is always a feel that the buildings are born in the places where they located. Always being humble and silent to the site, but at the same time, his buildings show the attitude of new and old that can coexist. And Zumthor gives his magic to describe how to build a building that has sensible atmosphere towards its site.

Zumthor concerns atmosphere is the magic of real, and he has been putting an eye on how to achieve his buildings this magic. There are nine qualities. **The body of architecture (1) like the anatomy of a body which is vital in architecture.** The body is mainly composed by the exterior, according to Zumthor, the other parts of a building come together to be as supplement. **The material presence of things in a piece of architecture leads us to material compatibility (2) - the ability of turning idea into reality.** Materials like bodies of people. You can recognize a person even if you are only watching his/her back. Same material can become different things each time, as I understand, two people can have same shirts. "It is like our own bodies with their anatomy and things we cannot see and skin covering us"[29]. Being familiar with the memory of a place, not only physically but also psychologically could make an individual have connection with the place. **Components that affect one's memory are mentioned to be the sound of space (3)**. The shape of a room and its material can compose the creation of sound. A familiar sound eases one into their surroundings allowing them to make associations with memory.

The temperature of a space (4) is important to Zumthor, because he believes every building has its temperature. For instance, steel means cold and wood means warm to build up an architecture. **The temperature of the spaces is associated with one's perception of a place as it affects one's comfort while the surrounding objects (5)** are what create a "sense of home" adding personality and vigor to an area, as well as influencing movement in architecture.

As for the composure and seduction (6), it is the ability to make one want to stay, or be surrounded with. "It has to do with the way architecture involves movement. Architecture is a

[29] Atmosphere – Peter Zumthor; pg. 25

spatial art, but architecture, like music, is a temporal art." Creating a voyage of discovery is down to the architect, be it the way the light falls or the halls curve.

The seventh is tension between interior and exterior (7). A transition between inside and outside must create mystery, leading to the levels of intimacy (8). The suddenly being enclosed or open to exterior is good to sense a space. How the facade speaks is down to the proximity, distance, size, dimension, scale, and the gravity of things.

The last one, also very simple, is the light on things (9) incorporates itself into this idea of enhancing spatial quality. Zumthor describes this process as hollowing out the darkness from a mass, allowing light to seep in.

Back to previous study about Schulz. As Schulz said, there is no different kind of architecture, but different situations which require different solutions to satisfy physical and psychic needs. Place does not refer to the locality, but consists of factors that together consolidate to form the environment's personality. However, Zumthor looks at architecture in a poetic way, he emphases the sensory aspects of architecture that aims to explore the conceptual and transcendental dimension of meaning in architecture. I think it that atmosphere is achieved by not only using your eyes but by thinking, imagining and using your other senses. I see the nine elements as described above by Zumthor as a good reminder of how the sense is addressed. Taking three projects as examples:

Figure 41 Bruder Klaus Field Chapel

The first one is Bruder Klaus Chapel. The design was constructed by local farmers. The interesting methods of construction begins with a wigwam made of 112 tree trunks as frame.[30] After the frame was done, layers of concrete were poured atop the existing surface then the wood frame was set on fire, leaving behind a blackened cavity. The interior is made by a floor of frozen molten lead. Nature light is pulled up by way of directionality, to the point where the roof is open to the sky and night stars[31]. This controls the weather of the chapel, and sunlight penetrates the opening and creates an ambience or experience very specific to the time of day and year. the Chapel all began as a sketch, the imagination of the site, eventually become a landmark in its natural landscape.

[30] Megan Sveiven. "Bruder Klaus Field Chapel / Peter Zumthor" 26 Jan 2011. ArchDaily. Accessed 23 Apr 2016. <http://www.archdaily.com/106352/bruder-klaus-field-chapel-peter-zumthor/>

[31] Megan Sveiven. "Bruder Klaus Field Chapel / Peter Zumthor" 26 Jan 2011. ArchDaily. Accessed 23 Apr 2016. <http://www.archdaily.com/106352/bruder-klaus-field-chapel-peter-zumthor/>

The second one is “Saint Benedict Chapel”. Zumthor used modern materials and techniques for this special designing, the cylinder-shaped chapel blends naturally into its context, without offending the traditional and historical dimension of the building location. For example, the chapel is constructed with wooden shingles, which similar as the local traditional houses. The roof of the chapel is reminding of a boat. Balancing between the expressive roof and the tradition is a ring of vertical wood columns and glass panels that crown the chapel, allowing natural light to penetrate the interior space, which similar as Bruder Klaus Chapel, the single interior space contains minimalist wooden columns, beams and benches, showcasing Zumthor’s delicate approach to material and details.

Figure 42 Entrance of Saint Benedict Chapel
Courtesy of Felipe Camus

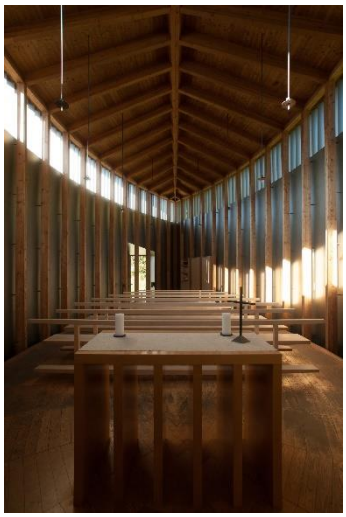

Figure 43 Interior space of Saint Benedict Chapel

The last one is the Thermal Val. The idea was to create a form of cave. Working with the natural surroundings, the bath rooms lay half buried into the hillside and is built from layer upon layer of locally Quartzite material. This stone became the driving inspiration for the design, and is used with great dignity and respect. “Mountain, stone, water – building in the stone, building with

the stone, into the mountain, building out of the mountain, being inside the mountain”[32], based on Zumthor himself. This space was designed for visitors to rediscover the ancient benefits of bathing. The combinations of light and shade, open and enclosed spaces and linear elements make

Figure 44 The Thermal Vals

for a highly sensuous and restorative experience.

From the above, we can strongly feel the spirit of spaces coming from those buildings. Architecture to Zumthor is not about form, but the light and the use, the structure, the shadow, the smell and so on. The form is the easiest to control, but the spirits, the condensation of the motion in those buildings are all reflecting atmosphere, the genius loci they represent.

Moreover, during each project mentioned above, we can all sense how gentle the new designed buildings were blended with local environment without disturbing it. This is not only about the materials which came from local, but also because that the atmosphere that the architect care to build up.

32 Megan Sveiven. "Bruder Klaus Field Chapel / Peter Zumthor" 26 Jan 2011. ArchDaily. Accessed 23 Apr 2016. <http://www.archdaily.com/106352/bruder-klaus-field-chapel-peter-zumthor/>

CHAPTER 5

PRECEDENT STUDY

5.1 The BongYangJe House

This project is special because of its client. The sixty-year old house become obstacle to the planned construction of a railroad, which is preparing for 2018 Pyeong Chang Winter Olympics from Seoul to Gangneung in Korea and needs to be partially demolished. However, the family could not discard the home, the grandmother and the father wish to maintain the traditional style they lived but the grandson aspired to a modern lifestyle. So, the architect needed to connect the old to the new and make them harmonious together (**Figure 45**).

The first task was to preserve the traditional house, to refabricate it from being demolition. The second task was to use this house as intermediate to link three generations of the family also link the traditional Korean style and the Western-style parts. Last task was to reconnect the building and its landscape which can reflect its locational background to memorize and at the same time pursue harmony with its surrounded environment.

Figure 45 The new building and the existing building

From the architect[33]: We made the existing Korean traditional house disintegrated and relocated to preserve

[33] http://www.archdaily.com/802989/bongyangje-house-architecture-studio-yein

the space for the grandmother and the father as well as creating a new space for the son. The Buildings are laid out in a way of unfolding its floor plan southward within the site and the almost 100-year-old Geumgang pine tree was fortunately preserved despite the new construction works of a double-track fast train nearby.

To avoid the noise from the right side, where the fast train would pass in the future, the architect repositioned the existing Korean traditional house to the left side while designing the western-style house as a reinforced concrete structure and putting a loft above as a space of buffering (Figure 46). The Buildings are laid out in a way of unfolding its floor plan southward within the site and the almost 100-year-old Geumgang pine tree was preserved fortunately despite the new construction works of a double-track fast train nearby.

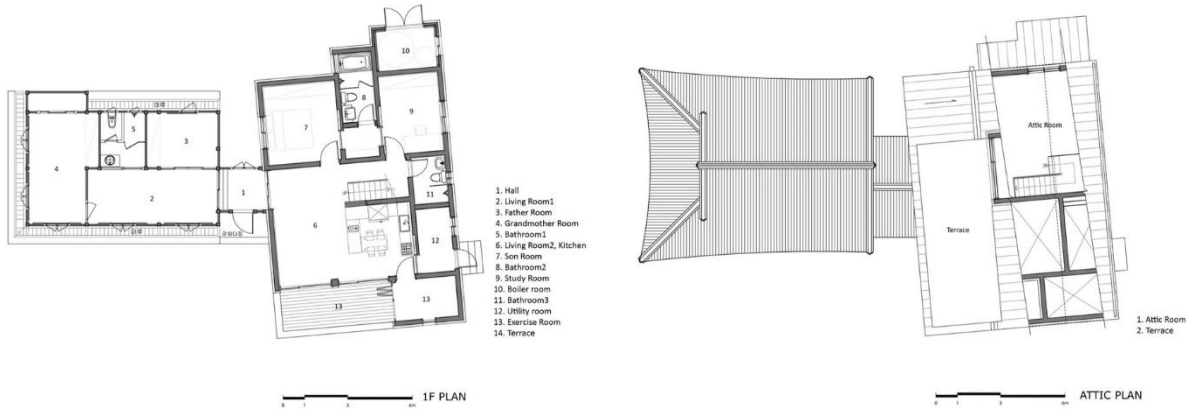

Figure 46 First floor and attic plan

In the traditional house, there are four main spaces, the one for the grandmother, another for the father, another for living room, and the other is not intentionally used as the connection between the new-built part and the existing. According to the architect, they used a wooden structure to naturally connects the Korean-style wing to the new part's vestibule. The left space was topped with a hipped-and-gable roof while its

Figure 47 Roof view of the house

vestibule and the right space were topped with a gable roof. In son's place, children room was put to connect with the toilet corridor so that the son would have his own family there in future; and the living room and the kitchen were located to the south. We also made a roof balcony that would serve as a family lounge to which one could go through the loft. The main material of the whole

Figure 48 Front elevation of both buildings

building are pine wood and concrete. The structure is both Korean traditional "Han-ok" and composed with timber wood coming from local pine trees (Figure 47).

In this project, the architect gave up the common method which to design another traditional style addition to the existing part, but to create a modern style to show the comparison by using different material and the methods of spatial organization. What is surprisingly to see is how humble the new part stays compared to the existing one that functionally it became the supplement of the existing building, which showing its most respect to the tradition. As a conclusion, it is an ambitious idea to specify how to link the new and the old and how to combine them together as one in harmony.

5.2 LiYuan Library

The LiYuan Library locates in a village within Huairou District of Beijing. The village has over 300 residents in 60 to 70 households and is neighbor to tourist attractions like the Mutianyu and Jankou sections of the Great Wall and the Shentangyu Natural Scenic Spot. Li Xiaodong firstly started his connection with the village at a cozy courtyard gathering therewith classmates in 2010.


Figure 49 The entrance of the library

He was impressed by this quiet village on the outskirts of Beijing and touched by the fact that the local resident of the area, especially the kids, were short of educational resources. With money from the Lu Qianshou Trust Fund, which had donated one million RMB for rural projects, he decided to build a non-profit library in the village to provide free books and reading space for both tourists and residents, a building that could be a place for communication between the two groups.

The LiYuan Library is the only man-made structure in Wisdom Valley, and is only accessible via a winding mountain road. It is a quiet site with water and mountains nearby. The idea of the project was to collaborate with the nature, to form a spiritual qichang (a flow of energy) that would concentrate the natural landscape. The building designed for the site would work with nature to build harmony at the location. In the finished building, several factors including the water surface before the building, the plank path beside the water, the smooth layout of pebbles, and the space enclosed by stick fences integrate the library with the surrounding environment. Inside the library, solar glare is blocked but less direct natural light can have access to the interior space. The library space has a strong local flavor because of the sticks that are used to clad and gave the project its name—the LiYuan Library.

Li Xiaodong always favors simple forms, and there is no exception with this project. It is a 30m long, 4.35m wide and 6.3m high box with a total floor area of 170m^2. It has two partial floors

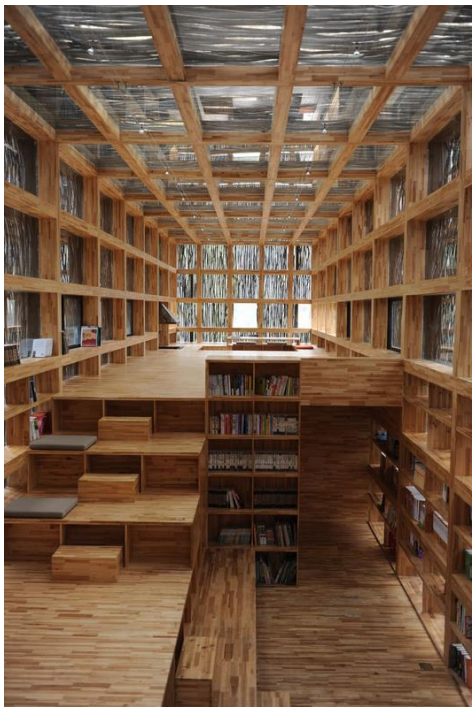
Figure 50 Interior space of the library

and includes a library and a small storeroom. Steel is the primary structural material and tempered glass is the exterior cladding material of the building. All the façades of the building (including its roof) are enclosed by 45,000 densely arranged wooden sticks of different lengths. The sticks were chosen because they are the most abundant natural resource in the area, used by local resident as cooking fuel and heating.

The glass-and-steel structure of the building is softened by the addition of the sticks, which change in color with the seasons and the surrounding mountains. In winter, when the mountain trees lose their leaves, the trunks of trees and the sticks of the building are in the same color and it becomes hard to distinguish between the two.

Compound cedar boards are used to decorate the interior space. They are cut at intervals to function as bookshelves or big steps that can be used as seats by readers. The interior space is plain and simple: the main space is composed of big steps that can also be used as bookshelves. There is a relatively independent sunken discussion space at each end of the library. The building is one 30m long space without partition walls or furniture. The only partition is at the entrance –a concrete door opening to the inside. The condensed entrance is a space within a space and works as a “classic” foreshadowing of the main space.

Books are distributed randomly around the library and are always easily accessible. It is easy for readers to find a book and seat and settle in to read. As they do, the wooden sticks

covering the façade and the roof glass, quiver gently in the breeze and sunshine shoots fragmentary shadows into the interior space. Visitors could can change their seats to follow the

Figure 51 The scenes of different seasons

light and shadow across the space.

There is no power supply to the library. This means no heating or air conditioning in the building. But natural methods have been applied achieve both heating and cooling to a certain degree.

Set at the lowest point of the building, the entrance to the library is close to the lake. In summer, air chilled by the water surface is introduced into the building through the entrance and naturally rises to escape it via a high opening near the roof. As the air rises it pulls warm air to either side along with it. The double-layer glass roof, with wooden sticks in between, shades the sunshine in summer and traps heated air during winter. As the heated air drops through the space it warms the room.

“Instead of merely being a tool, technology is also an idea. The aim of integrating technology into architectural space is to enable the houses to self-adjust along with the alternation of outside environment.” The LiYuan Library design, which resolves local problems with local resources, reflects the architect’s ideas about sustainability in practice.

“The wooden sticks will attract nesting birds, and plants will grow attached to the mixed soil and earth of the nests. These events will effect colorful changes in the library along with the change of seasons, and integrate it even more into the village landscape.” “The wooden sticks come from nature and will go back to the nature. I intend to reduce the influence of architecture on nature to as much as possible to achieve harmony between man and nature.” These are the architect’s expectations of the project and the design concepts that he adheres to: the construction of architecture should not only enhance but create environments that are a part of nature, instead of an abrupt foreign insertion in it.

Figure 52 Reading area

Figure 53 Material texture

By turning the nature-based architecture into nature, the design idea of the project conceals man’s role in the conversation. The form is plain, but the conversation it generates is very rich, providing a multitude of views at each step, a contemporary interpretation of the tradition.

LiYuan Library is the third non-profit design conducted by Li Xiaodong, who has always valued an engagement with local resources and traditions in his designs. “Though it’s modern architecture, it reflects traditional Chinese wisdom everywhere.” He has always been intent on

exploring “the possibilities of applying traditional Chinese architectural concepts in concert with modern architecture and nature.”

Though the original intention of the project was to serve the village by filling the need for a school and library, the ambition of the project has expanded greatly. People from Beijing will spend two hours driving to the place to appreciate the building. The stream of visitors will give local resident the chance to make money by providing them with food and accommodation.

“Before the construction, we were worried that it could damage the landscape of our village,” said Wang Fuying, a local resident and also a volunteer in the library, “but now we are relieved. Kids have a place to read finally. And there are more and more visitors which means we are able to do some small business.”

This is exactly what the architect desired, “the architecture should play a positive role in the healthy development of the community.”

5.3 The Grandfather’s Hostel

It is a renovation project, which the site locates in a village named Pingtian where belong to Zhejiang Province in China. The layout of the village maintained the same as it was before and the buildings in the village kept their style and the villagers kept their traditional lifestyle. Most of the buildings in the village are made by rammed earth and have black tile as roofs. This project is a residential renovation which is part of the plan that to restore the whole village. Its aims at giving the original residence new features to resurrect and promote the development of the village.

Figure 54 The entrance of the house

Figure 55 Overall view of the village

The house for the renovation belongs to Grandpa Jiang, who is the most respected resident in the village, so people call the house “The Grandpa’s Hostel”. It locates in the heart of Pingtian Village’s, where belongs to one of the few flat areas in the high land, is adjacent to the public activity ground – the triangular area, which is the main place for villagers and tourists to rest and have daily activities. Grandpa’s home is composed by the main building and an ancillary kitchen, which is built by rammed earth and traditional wood structure. The main part on the first floor contains three bays, which is only under use now, the second floor is basically used for hoarding grain and sundries. Although the building keeps completed of its appearance, the spaces are not efficiently used.

Figure 56 The renovated interior view on the first floor the entrance of the house

The design concept is to restore and transform the function of the building, bring resurrection to the house, and make it become an effective part of the future industry of the village. After discussion with the owner, the local government and the villagers, the final function of the building is: Youth Hostel, which serves short-term accommodation and exchange space for young people from the outside.

The first floor is transformed to a public exchange space which is for communications and relaxation of young people and the grandpa. Three bays were dismantled to one large open space and shaped with a bar, bookshelves and other furniture. The kitchen and the main part were separated by a wall to provide more fresh air to the exchange space. To maintain the connection between the indoor and the outdoor, which is the most attractive part that the rural architecture and its surrounding environment are well interacted, the landscape surrounded the house was also restored to a small outdoor platform for residents and visitors to rest and have a view of the scenery.

The second floor is the focus of the renovation. The openness of the spaces gives a characteristic of the house and make it different from its surrounding traditional dwellings, and

Figure 57 Views of the cubes

the designer wants to keep this character and beneficial effective use of it as a flexible and even changeable space. By breaking the normal way of dividing the spaces with walls, the designer decided to use three “cubes” which are constructed by wooden structure but light translucent material as cover skins to create three moveable and removable units inside the house. Each unit can contain 4-6 persons. Movable means the three units can be moved and grouped based on the needs of the users on the second floor, removable means the units can be replaced or changed easily. Different combinations provide a way to change the form of the spaces and create new

interior spaces of a traditional residence. Besides, each unit will have colored lighting fixtures to be enlightened, which make them look young and vibrant.

The original structure was preserved completely, and the original rammed earth walls were kept too. Only one long window was installed to have a better view of the mountain and the village, at the same time to meet the requirement of ventilation and illumination.

In the outdoor look, the new house maintained its original appearance and has a more harmonious relationship with its surrounding environment. Indoor is another look, the comparison between the new and the old brings the Grandpa's hostel an intersection between the history and the future together in one room.

The method that creating movable units generated new spaces inside the old house, which in another way showing a fully respect to the original spatial appearance without disturbing it. The usage of new material is very bold and advancing, but fresh enough to absorb young people to

Figure 58 Views of the colorful lights

come so that the village can be known by the outside, which may bring a vibrant future to help its development.

5.4 Tonglu & Yunxi Pioneer Library


Figure 59 View of second floor of the library

The library locates in Tongly County, where is a mountainous village that belongs to Zhejiang Province. The concept of Pioneer Bookstore is to enhance the cultural communication between all levels of society. Taking this concept, the 11th bookstore was chosen to be built inside this small village, which aims to tie public life together between the villagers and the outside workers and call for support by local government and the creative industries. The layout of the library is a courtyard where side close to the main street of the village is idle. It has two existing rammed earth houses and one platform that protrudes from the slope area.

To Inject a new function to the old house, the most critical design operation is to lift the roof. The pillars of the roof are raised by 0.6 meters by forming with a high window structure. The views of light and the beautiful bamboo landscape are naturally introduced into the building by having the roof raised. The roof's uplift is dependent on local craftsmen, who used "SunMao" technic to partially lengthen the existing pillars during construction. Meantime, the repair of roof system, for example, attaching insulation board on the roof structure, greatly improved the thermal comfort to the old house. Outside the building, because the old walls and the grey tiles that keep the function of enclosing the building, and the new side windows open to the public space, the renovated building shows its attitude of enclosing but welcoming.

Figure 60 The addition connects the existing two

Another important part of the renovation was to add a link space between the two buildings, the library and the café, to strengthen the connection. To realize this idea, a wooden structured corridor was created (**Figure 60**). It redefined the outdoor spaces and enhanced the continued experience between spaces. From streets to the steps of the corridor, you have passed from the yard. Entering from the corridor that has twists and turns you would see the public spaces defined by a well-organized stairwell. You would also see the naturally formed platform and the space defined by the new bookshelves (**Figure 61**). Keep walking, you would see the other outdoor space which was for the exterior reading area.


Figure 61 Reading area defined by the new bookshelves

The east side addition of the interior café as well as the west side of the existing part are both used brick and concrete for the structure and have isolated foundation systems, which provide an enhancement to the old houses. The architect wanted to disturb the old buildings as minimum as possible so the added elements are intentionally to be designed in a traditional style to show a clear timeline of the existing building, which made the spaces have a consecutive appearance and let visitors have an experience of local life.

The architect decided to maintain the structure and the space order of the houses by only repairing the poor condition of structure elements, which making those elements, such as the

Figure 62 Night view of the library

adobe walls, tiled roof and the old truss, to become the carrier of the time and the memory that to dominate the relationship between new and the old. Together with the reproduction of the public space, the renovated house creates a cultural consecutiveness of the contemporary local aesthetics.

5.5 Conclusion

All the projects I chose to study are mainly in small scales and are very targeted to specific sites. However, we can still gather some common grounds when doing a renovation project to rural area buildings, especially to those which have historic values. The first point that the designers have in common is to show the respect as much as possible to the local environment, both natural and cultural. Maintaining the spatial organization as project of the Pioneer bookstore, introducing the new cubes for not disturbing the original spaces as the Grandpa's hostel are all

the reflection of the point mentioned above. The roots of tradition in the history of China is based on agricultural civilization, and the truly architectural tradition lies in local settlement, the continued development model of the whole organic urban and rural relations. Any area that moving people by its environment characteristics are the survival of the test by the time. Because of the irresistible time, the spaces that architects carefully designed often more personalized but cannot face the test of the time, that is why sometimes they need to stay within the limitation of the current spatial organization, from interior facilities to courtyard corridors, designers should try to carefully design the form of new elements which are going to be added to the existing spaces, let the new elements become the introduction to the old spaces, become the cultural bond to the old and the current time.

The second point is also significant to existing buildings – the new function. Without putting new usage into a renovation project cannot last long on behalf of the buildings. This is not about to increase the profit of real estate, but also is benefit to the development of the area. As time goes by, new functions may become old, however, there will be new functions coming, and this is how the regional environment is accumulated and why it is so important and unique to be preserved and developed. In the first project of the 60-year-old house, the architect chose to follow the wish by the family to maintain the function of the existing, which kept the old building functional for another sixty years, this is one of the best way to preserve an old building – to keep using it.

Finally, the introducing of new materials and construction methods are mainly adopted during renovation projects. Preservation deserves its credit to gain broader view of consideration what needs to be preserved. It does not mean to keep all the old elements even they are not fit

for contemporary life pattern. By using modern technologies, but not destroying the traditions to preserve valuable elements, physical or spiritual, an old building can truly be memorizing

CHAPTER 6

CONCEPTUAL AND SCHEMATIC DESIGN

6.1 Concept Design

6.1.1 Thesis idea creation

I firstly came out of the thesis idea was when I happened to read a travel journal from a journalist. He and his wife decided to slow down their fast-paced urban life and went for an experience of country life style by travelling to different villages in China[34], at the same time mainly focus on exploring rural areas where containing traditional handcraft skills but nearly extinct from the country. Usually they spent a week at each place, learning and left, but when they came to the village – Ling, which became my site of analysis today - they spent a month there and tried to retell its story.

There are thousands of historic villages like Ling, which is an unknown, but a name should not be forgotten. What makes Ling should be known and remembered is what it was before and the current condition it has. That is also why the couple spent so much time to learn about it.

As mentioned in the previous chapters (Chapter 3), Ling was the place of origin that invented Xuan paper, which is a very soft thin paper for calligraphers and painters to do Chinese handwriting and paintings. Before the journal, I only knew that Xuan paper was invented in Jing

[34] "Xiaoling, The Cradle of Chinese Rice Paper", Hu Lei and Chuanju Ruan, 1994-2016 China Academic Journal Electronic Public House. Courtesy to "Socialism". Translated by the author

County, I never knew that this can be traced back to Ling, a group of 13 small villages. People would never hear of Ling if they do not have the chance to see this journal. In this journal, the author mentioned his friend, a calligrapher who came to Ling eight years ago. Initially the calligrapher was intended to spend a few days there for sketch, however, the situation of development of Ling made him decide to stay for help[35], and the help maintained for eight years. This impressed me a lot and inspired me to notice that there are many entrepreneurs, like the calligrapher, who want to help rebuild rural settlements as Ling, but they may not be able to connect to those areas in a way like the calligrapher, who truly understand the area by integrating into the local environment. The connection can be created by an architect who can help the villages to develop by using a professional language. That is why I had this idea to this project that to preserve, to develop the village of Ling, hope this can contribute the value of preserving historic buildings. With the questions about how to use architectural language to help, to show an attitude towards a remote historic village like Ling, I started my research on the program

6.1.2 Program research

As mentioned, the whole traditional process of making Xuan paper usually costs months to finish and has about 100 steps. However, just because of this, Xuan paper came from Ling has the best quality and can last a thousand of years without ink fading. That is why Xuan paper of Ling became best seller around the world. Nevertheless, large production was extremely needed then. Mass production takes fewer process, but on the other hand more chemical elements used and

[35] "Xiaoling, The Cradle of Chinese Rice Paper", Hu Lei and Chuanju Ruan, 1994-2016 China Academic Journal Electronic Public House. Courtesy to "Socialism". Translated by the author

less quality as it came out. Only 1% of Xuan paper now is produced from the local workshop in Ling. Unfortunately, the limited environment caused people to move out of the mountain and started large business in Jing, the village was gradually forgotten by people. What is worse, what people left behind is not only the traditional way of making Xuan paper, but also the people of the village, too.

The renovation to this remote historic village should not only restore the buildings and grounds, but to welcome an innovative program to the site, a program that can bring in people from the outside, bring young people back to their homes and enhancing communications so that the village can have a brighter future.

Therefore, an idea I came up with is a teaching center. There are now a lot of programs, such as summer camps that takes young people or students to travel to different historic places and to spend a few days sketching or experiencing. By providing a place in a teaching center for

Figure 63 A professor shows to the student how to make paper

Figure 64 A calligrapher teaching writing

Figure 65 A summer sketching camp in Hong village

them to gather for classes and sketch towards may bring better chance for people in the village to develop. Also, the teaching center needs management, which may bring more job opportunities so that people left the village would like to come back. Also, the place can provide current villagers a chance to communicate with the outside. So, by dividing the village into three parts, there are three potential programs can be fit in the village (**Figure 66**). The outer part may become an area

that mainly focusing on serving outside people, for example hostels and restaurants, to functionally satisfy the needs of daily activities. The inner part can be maintained to serve local residence but renovated to meets the modern requirement of lifestyle. The middle part, where focused on design will become an area that can serve both, as well as enhancing the communications between the villagers and the outside people. We all know that now is a times of internet information, a person with one cellphone can have everything spreads so fast, and this even happen more among the youth. So by inviting more students coming into the village, more chances the village can gain for further development in the future.

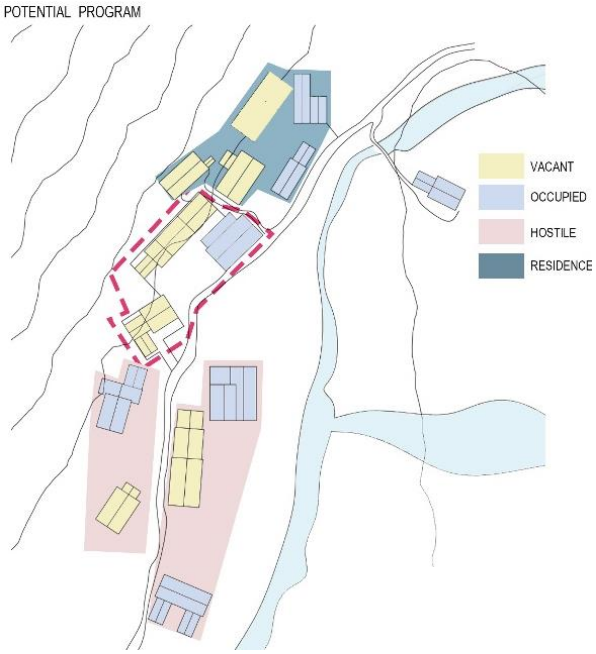

Figure 66 Potential grogram diagram

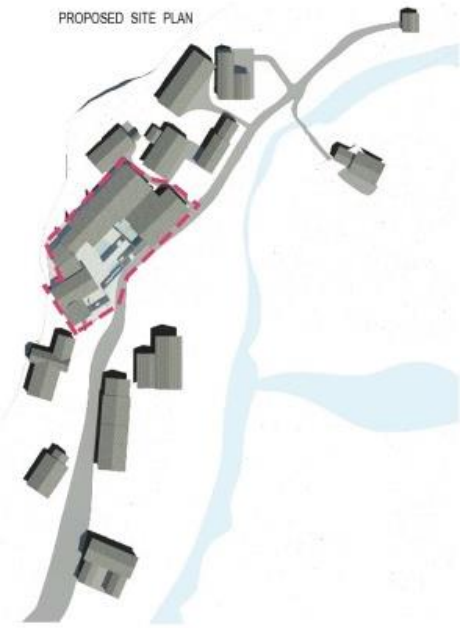

Figure 67 Current Site plan

The middle part has three existing buildings, all of them were residential buildings. I added two new parts as two bridges (**Figure 67**) as the meaning of linking old by the news. Functionally, the existing buildings are all changed towards the new functions.

One thing that perplexed me was the program of the renewed buildings. I used to think leave these spaces empty for giving more flexibility to be used in the future.

Then I found it would not work because this place is far from urban cities, if you leave it there, the places would not be used anymore after the renovation. The spaces need to be filled in some functions that can link the outside and inside together. Gladly, more people visit historic sites than read books of history, especially for youths. Bring them into the historic place and teach them how to make Xuan paper in a traditional way may be a good opportunity to bring levity back to the village

Figure 68 Bird view of the group

6.2 Schematic Design

6.2.1 Influential factors

However, even if the program is defined, there are still three more factors that are affecting the renovation. First would be the water system. As I said above, there is no water system for daily use. Although the village has electricity installed five years ago, the infrastructure is still

in a poor condition. Moreover, making Xuan paper takes a lot of water, usually the water was untreated before it went into the river, the water also needs to be filtered or reused before polluting the river. Injecting a new water system is significant to the site. The second is how to treat the current historic buildings. The building style of Wan is the typical Huizhou style which has a black tiled roof, a white high wall and small windows and doors. The site although has poor building conditions, but it has the original appearance of the style. Also, the beauty of the historic buildings here is the complete preserved structure. So, deal with the existing structure is another vital element. Finally, how to create the spaces to be fully blended into the environment of the site is important. The condition in Ling is so vulnerable that cannot stand for another inappropriate fix. It is not only to restore the building, but also to find a way that live harmoniously with the old buildings. By having these influential factors, I started my further design.

6.2.2 The building function

The shape of the building is a composition of three small existing buildings and two new supplement spaces. The scale is showing its respect to its adjacent village. The spatial concept is to create a visiting experience between exhibition area and the outside landscape. When visitors walk through the building, an awareness of the inseparable relationship between paper making and the environment comes along.

You can enter the building from different directions. Enter from the left side is a classroom and a meeting area, which was one of the existing spaces, and two new restrooms. The existing area were composed by three small houses which now became two larger spaces. When keep

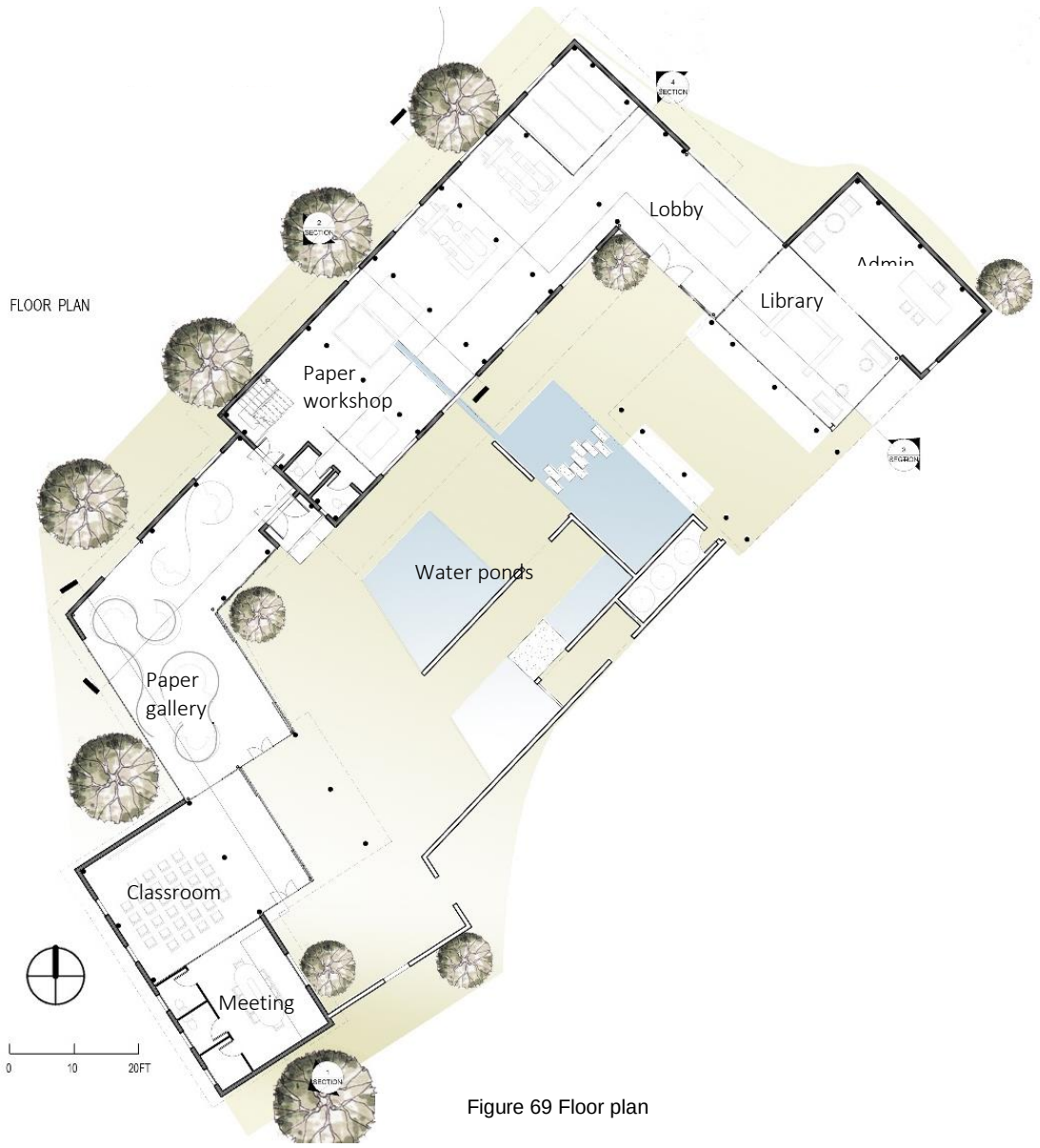

Figure 69 Floor plan

walking, you'll enter a paper gallery which is new. The circular spaces are created by folding Xuan paper to enclose semi-private spaces for visitors to have a rest, or for students to study. There will be a buried curvy metal channel that holding many clamps to clamp the paper, there are cable wires that hanging from the roof structure to strings the paper to make the standing happen. The cable wires also have clamps to provide the support.

Walking through the paper gallery, you'll enter another existing part. It contained three interlinked houses which were used to live in by a family with four. However, two of the houses

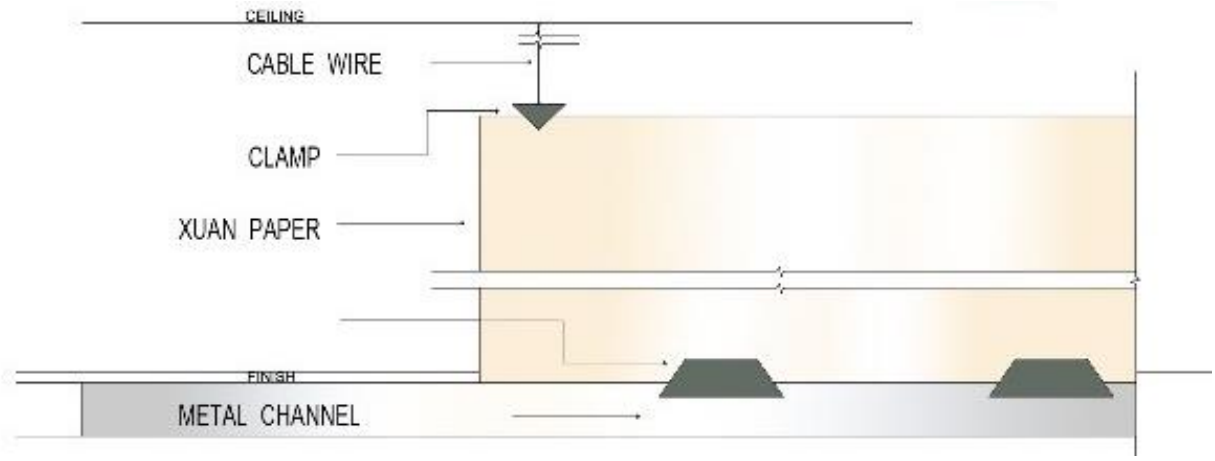

Figure 70 Diagram shows how the metal channel work to immobilize the paper

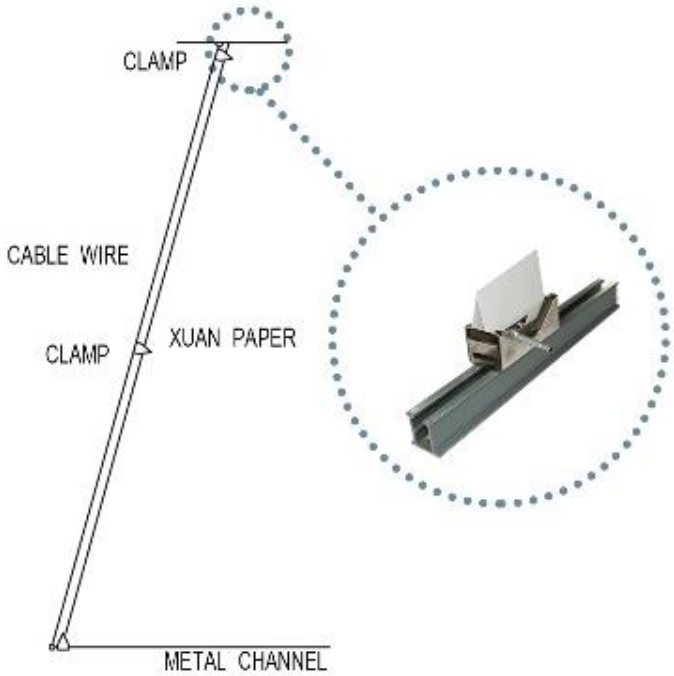

Figure 71 Enlarged detail for paper clamping of the cable wire

are in idle right now. By reshaping the I decided to keep the character of the whole space and make benefit use of it as a flexible space. The three buildings are renovated to an open space of

Figure 72 View of the new paper gallery

Figure 73 Night view of the new paper gallery

Figure 74 existing interior space

Xuan paper workshop on the purpose of teaching people how to make paper. It is also can be considered as an exhibit area to perform the handcraft process. Meantime, taking advantage of

the floor height generated by slope roof, there is a second floor created for visitors to have a rest or for small gathering activities in the workshop. A long window was created to get better view from outside courtyard and meet the requirement of daylighting and ventilation.

The paper workshop contains basic tools for making Xuan paper, which including a water pulp. It is used for small production as well as exhibition. The untreated water that coming out from the pulp will flow to the outside ponds for filtration through a ground channel. This make the pulp become part of the water system I will introduce in the following part. By continue walking, there is a large lobby area for circulation and link the library with the workshop.

Figure 75 Renovated interior view

Figure 76 Existing interior view

The small library and a admin space are created by renovating the third existing building. The library can accept donation of books from the outside and for local villagers to spend some time learn or communicate. The office is for management of the library, the workshop as well as the classroom.

Figure 77 View of the library

Figure 78 Existing interior view

The spaces which are in different function but are divided by a kind of partial walls which are composed by wood framing and Xuan paper. For example, the division of the classroom and the paper gallery uses the partial wall as a separation. These walls are created to trace back to a traditional way of creating doors and windows in ancient China. Xuan Paper is in good condition of stopping winds and strong sunlight from entering to the building, at the same time creating more private spaces. By using the handcraft paper as interior finish to set up blurred boundaries between the spaces to maintain the completeness the existing spaces. Meanwhile, the paper material, with time passed, will fade into a more harmonious color with the landscape, which will hint a sense of time on the building.

6.2.3 The courtyard

This project, in a way, aims at preserving the traditional way of paper making as a cultural heritage, at the same time to memorize the people who has contribution to community growth.

Figure 79 From the classroom to see the courtyard

To exhibit the history, technique and product of paper making, the form and detail of the building is conceived to respond to the views, natural light and the climate.

Figure 80 Drawings by Guanzhong Wu, showing the abstract elements of Huizhou

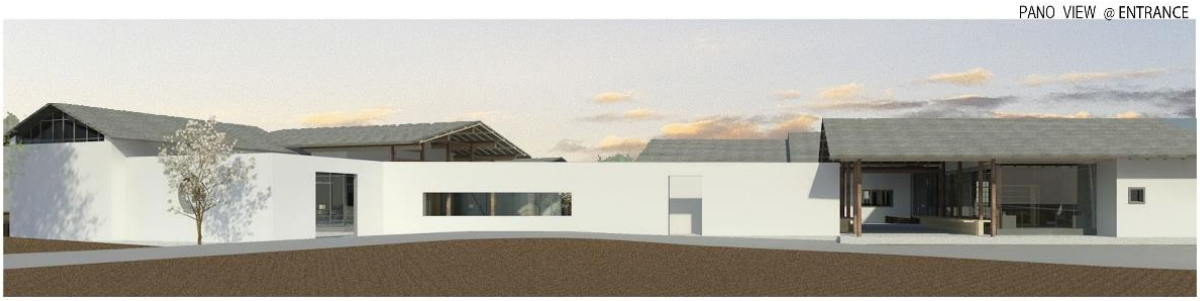

Figure 81 Elevation view at the entrance

Another concept of the design is to refer to the abstract impression of Huizhou style. The black tiled roof, the high white walls and the small windows and doors. What is most important is Huizhou buildings are always humble to the environment, the many layers of walls like mountains that become part of the natural environment, the white walls become the drawing boards that waiting the natural colors to decorate. The high walls are the representation of the spiritual needs of villagers in Huizhou which is not willing to be reached easily and paying more attention to privacy. Having the impression of this, I started to create the spaces of the site. From the outside, you cannot see through the inner garden, but only to walk inside for experience.

The outside courtyard of the site used to be a large open playground without being treated. I hope the design can response to the traditional Chinese spiritual needs: To return to the field and affectionate about the nature. Therefore, I put several white walls to create more turns and

transitions for the streamline, at the same time lengthened the line of sight and circulation time. When people walk into the spaces, the boundaries between different spaces are blurred, and the courtyard spaces is “zigzag” shaped, intertwined or concealed, or penetrate and open. The line of the sight continues to turn and each stay can glimpse the looming scene, and the eye drives the footsteps to keep exploring. The sequence of the spaces become more complex, which referring to the tradition of not willing to be easily reached. Besides, designing the courtyard to have more outside activity spaces can bring more levity to the site.

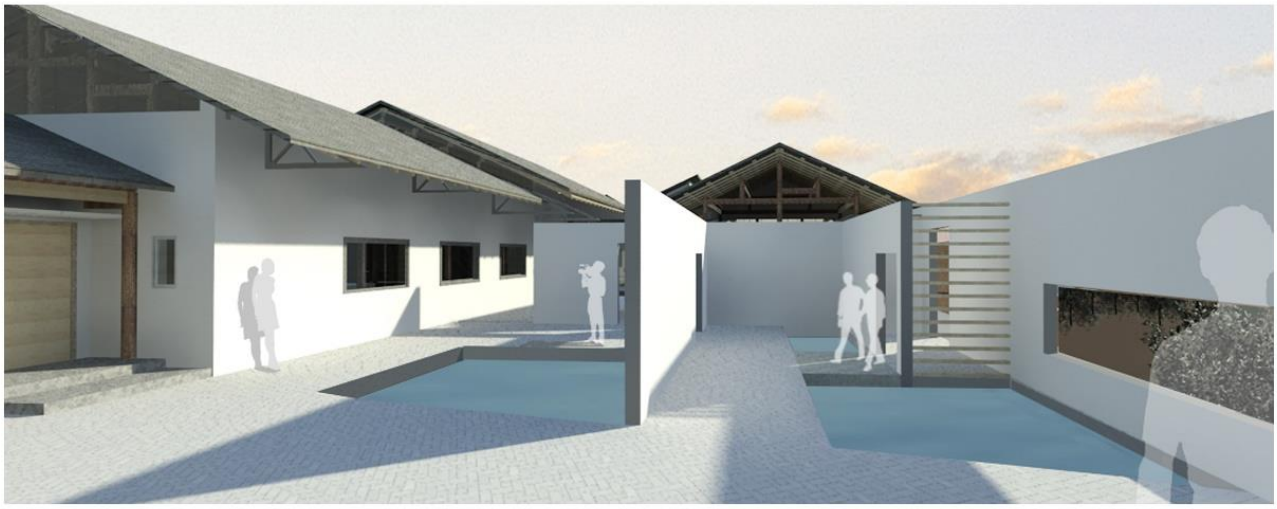

Figure 82 View looking at the courtyard

CHAPTER 7

DESIGN DEVELOPMENT AND FINAL DESIGN

7.1 Design Development

7.1.1 The structure

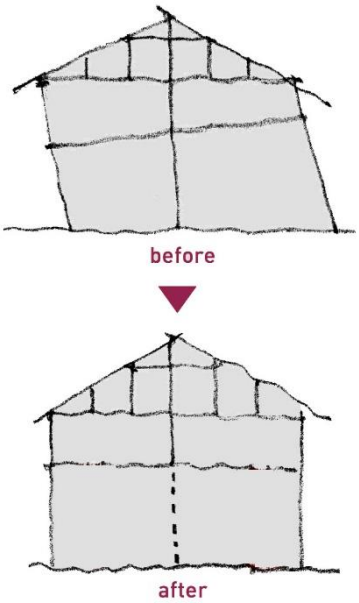

Figure 83 Diagram showing the concept of reshaping the structure

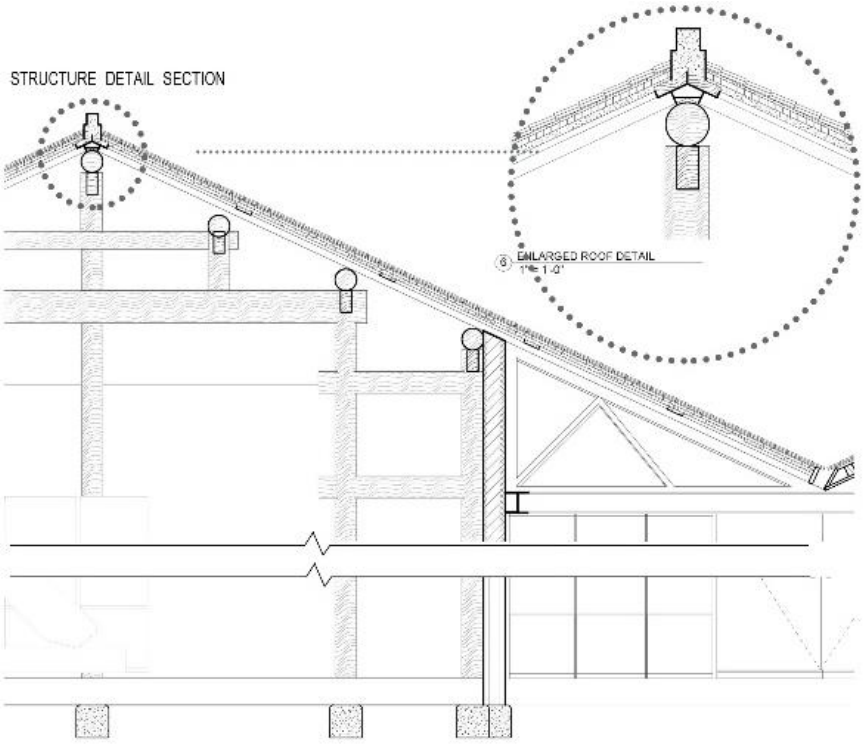

Figure 84 Enlarged detail drawing of the roof structure

The site although has poor building conditions, but it has the original appearance of Huizhou style. Also, the beauty of the historic buildings here is the completely preserved structure. So, the structure of the existing buildings is maintained but repaired to provide continuous usage. The building was designed with traditional Chinese wood structure system featuring nail-less tenon connection. Parts of the structure are intentionally exposed to the exterior spaces. Covered

with the roofs, those exposed beams and columns created several grey spaces for more outdoor activity spaces. At the same time, the exposed structure became more cultural spiritual representation of the site. Visitors can remember the village and its precious history value by looking at the beautiful structure.

Moreover, taking the warm and rainy weather into account of Anhui, people would like to walk outside even more than staying in the room. The external cover of the building – the eaves is particularly important, which is to shelter the people for daily activities. Therefore, I decided to rebuild the roof system by adding three trusses to support the eaves extending more than they

Figure 85 Existing interior view

Figure 86 Renovated interior view with the function of paper workshop

were before to provide more exterior sheltered spaces. For the existing structure, I basically respect the original style to reshaping the columns and the beams, at the same time putting new

wood rafters underneath the existing roof rafters to raise the height of the roof as well as provide stronger structural support.

Figure 87 The current building having a dialogue to the traditional Huizhou style

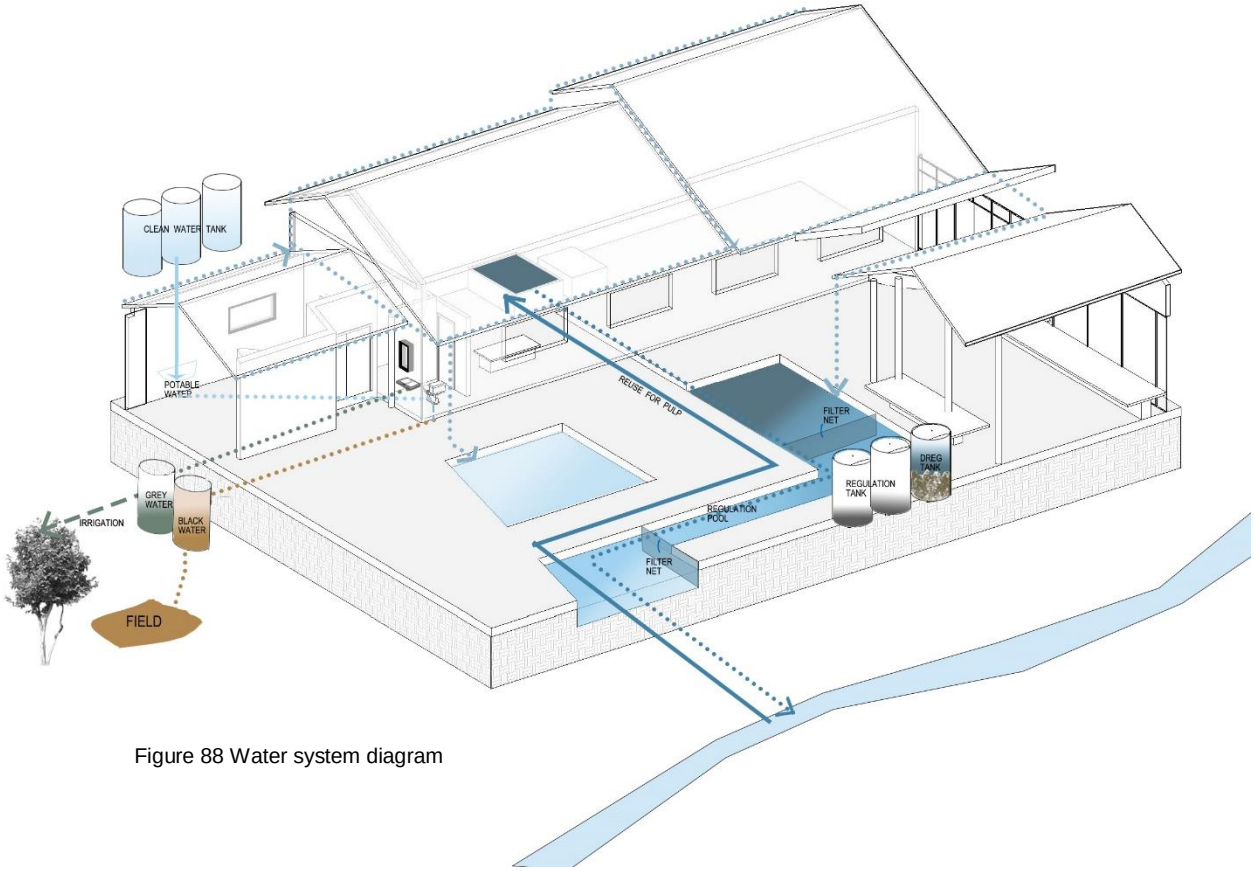

Figure 88 Water system diagram

7.1.2 Water system

As I mentioned above, the village needs a new water system to help the villagers to improve their living quality. There will be two main water systems. The first part is the water filtration system. The water comes out of the pond of the workshop will flow through the slope channel into the first pond. The water condition is alkaline with the waste pulp chip. The half-buried tank pumped the water into the tank aiming at absorbing the pulp chips. Then the dirty water will be pumped back to the pond. A filter net is also installed between the first and the second pond to roughly filter out the impurity. When the water goes to the second pond, there will be two other tanks to infill acidic substance to neutralize the water. After this process, the water continues flow on a slope base through the second filter net to become clearer and into the third pond. The water in the third pond is clear enough to be reused for the pulp to make Xuan paper or to be transported into the river.

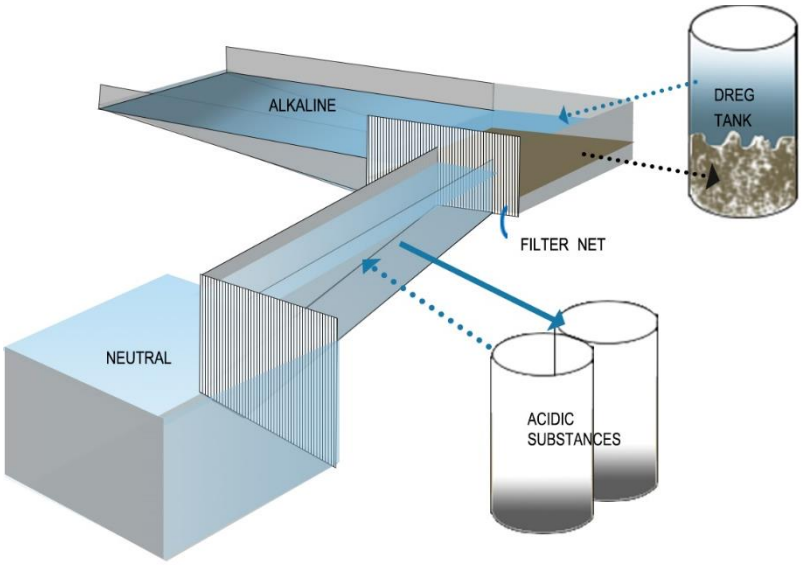

Figure 89 Enlarged water filtration system diagram

The second system is the rain collection system. Consider the rainy climate of the site, storage the rain water from roofs can serve better usage for the villagers. The rain water will be collected into the fourth pond for storage to flush the toilet and to wash the clothes. After the water is used, the black water goes to another part of the system to be used for plant growing or

field irrigation. Moreover, there will be three tanks for collecting the mountain water coming from the mountains to be used for food wash and drinking. After the waste water is used, it goes to the above part of the system for irrigation or toilet flushing.

By having the new water system, the quality of living condition can be improved and in a way, can promote the villagers to pursue modern lifestyle. This system is only a small part of the treatment of the water towards the whole village, but it stands for the attitude that what kind of system the village can be living with in the future.

7.1.3 New spaces and materials

Materials are a best way to show the attitude of blending the building into the local environment. One of the main design strategy of the renovation is to use the local material to blend the building into the local environment. That is why I chose to keep the traditional construction method and the usage of local material is also maximized. Besides, by using local material, modern quality and regional character are combined by using local sustainable techniques and resources. Local material such as the Xuan paper is used for windows and partial walls composition, fir wood and stone of the mountain are used for the structure maintenance and the pavement respectively.

The exposure of the structure caused the spaces needs other supports, which is taken by the new added parts. I chose to use steel structure to take the whole load of the new spaces and the existing renovated part. The steel circular columns take least spaces but providing much

Figure 90 comparison between the new outside space and the old

stronger support to the new structure and the existing, aesthetically, the simpler the structure is, the humbler the intervention will blend into the environment.

Besides, using glass panels to enclose the spaces can provide the comparison between the new and the old, as well as the transparent material reduce the sense of existence to highlight the traditional materials and the spaces they created. Although glass panel may be too transparent to see, I used Xuan paper and wood structure to create sliding panels for shading, which make the spaces more flexible to transmit between public and private. The white paper wall in galleries creates a soft and warm atmosphere and keeps the space abstract.

7.2 Design Summary

Throughout the plan, by putting new elements while highlights the form of architecture that remains from ancient times, given the space and the old ones, such as further look good architectural interventions is a concept. Besides the gentle explicit response of the form, the implicit connection of materials and textures is also our design thinking towards a historic building. When doing this renovation, I always take consideration of how to preserve the old by introducing

the new. The combination of the structure, the spaces, the usage of both local materials and new materials, I intended to make the intervention become self- evident that, the new can be coexisted harmoniously with the actions executed over time of the old by gently impacting the current lifestyle and the visions of the people.

Figure 91 View of the renovated classroom

Figure 92 Day view from the courtyard looking at the paper gallery

Figure 93 Night view of the renovated group

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