ABSTRACT

Title of Thesis: HANDMADE | CHINESE VILLAGE CULTURE AND CRAFTS IN DAKOU, CHINA

Boyu Li, Master of Architecture, 2017

Thesis directed by: Steven Hurtt, Professor,

School of Architecture, Planning and Preservation.

Many villagers pursue a better life in cities nowadays due to urbanism in China, leaving their village home with farmland and seniors. Tourism is a double-edged sword. It salvages these villages economically but ignores the value of tradition and crafts. To protect and promote village traditions and financially benefit local people, architecture can establish a theme where people learn about craft-making and celebrate craft-related tradition. A craft-focused cultural center can be a first step towards rejuvenating the villages. It can also elevate the significance of crafts as intellectual property. This thesis will focus on how architecture treated as a craft can interpret the spirit of craftsmanship, encourage learning through hands and practice and eventually celebrate authentic Yellow River basin village life and northern Chinese traditional architecture.

HANDMADE | CHINESE VILLAGE CULTURE AND CRAFTS IN DAKOU, CHINA

by

Boyu Li

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Master of Architecture
2017

Advisory Committee:

Professor, Steven Hurtt, Chair

Professor, Brian P. Kelly

Assistant Professor, Ming Hu

Dedication

I would like to dedicate this to my mom. She has been the lighthouse of my career and life ever since childhood. Without your help, none of this could have happened.

In addition, I would like to thank my husband for being a strong backbone and help polishing my language all three years of graduate school.

Finally, I would like to thank all my colleagues and classmates for our comradery that support me throughout the thesis process.

Acknowledgement

For their mentorship, motivation and critics:

Steven Hurtt

Brian Kelly

Ming Hu

For their patience, conversation and help:

Chris Reyes

Karen Kim

Greg Goldstein

Maryssa Timberlake

Marcus James

Michael Sisson

Table of Contents

List of Figures

Chapter 1. Social and culture crisis in China

Vanishing of the traditional village

Globalization and urbanism has brought opportunities attracting village Chinese moving out of rural areas in search of a prosperous and new life. Similar to other countries' experience in the early 20th century, the mainstream of the society became modernism and pragmatism.[1] The further open policy to boost economy growth after 1984 open-door policy further reinforces the booming of urbanization and cities, starting the sharp contrasts between cities and villages.

However similarly to other post-modernized countries, China has realized that a lot of its traditional values and culture is vanishing and deconstructing through a series of modernization movements. [2] One of the most significant change is the vanishing traditional villages and their heritage embedded.

> "Traditionally, Chinese culture has always been based on the rural societies," said the famous writer and scholar Feng Jicai. "Once the village disappears, the culture will pass into oblivion too."[3]

In 2000, there were 3.7 million villages in China. The number dropped to 2.6 million by 2010. [4] Villages are vanishing as a speed of 80-100 per day in China. The major reason for the vanishing villages is that many villagers and peasants are moving

---

[1] Tang, xiaoteng 唐晓腾.Nong Cun Xian Dai Hua Yu Xiang Tu She Hui Bian Qian: gainian, linian, ji xianzhuang" [Modern villages and its social changes: principles, ideas and current situation] *宁波党校学报 Ningbo Socialists Journal* No. 2 (2008):112-116

[2] Mann, Susan, and Gilbert Rozman. "The Modernization of China." The Journal of Asian Studies 42 (1): 146. 1982.

[3] Ian Johnson, "In China, 'Once the Villages Are Gone, the Culture Is Gone'" *New York Times* February 1st 2014, A1

[4] Johnson, "In China, 'Once the Villages Are Gone, the Culture Is Gone'", A1

out of countryside, pursuing a prosperous life in cities. For the first time in history, the urban population exceeded the rural population in China in 2011.[5]

The vanishing of villages and decreasing population of villagers makes the ideology grown out of farmland deteriorate. Unfortunately, the arbitrary understanding of traditional culture in village as "uncivilized and negative" becomes the common idea by the majorities of the society in China. [6] The Chinese spirit, rooted in the village, was once popular and romantic through literature and art. In the modern society, however, it is struggling, barely surviving.

The loss of traditional craftsmanship and architecture form

The direct consequence of vanishing traditional villages is the disappearing of tradition, artisan skills and indigenous living style. The category of traditional is not limited to folk art and non-physical heritages, but also the practice of traditional Chinese architecture. Chinese scholars have identified many causes, yet the two major factors are the single-minded economic growth and social structure changes.

The Chinese government's single-minded dedication to GDP growth has deeply affect the social and cultural development of the country. The direct result is the stagnation and even retardation of social and cultural developments, such as folk arts, traditional crafts and architecture. The focuses on urbanization also lead to lacking infrastructure and information outside the countryside. This may also lead to the rise of

[5] Zhengzhou Yang, "Demographic Changes in China's Farmers: The Future of Farming in China." *Asian Social Science*; Vol. 9, No. 7; 2013

[6] Xia Zhao 赵霞, "Chuan Tong Xiang Cun Wen Hua de Zh Xi Wei Ji yu Jia Zhi Chong Jian [On the Order Changes and Value Reconstruction of Rural Culture]" *中国农村观察 [Chinese Rural Survey] No. 3*(2011):83, 2010.

vulgar and materialized style, leaving worse impression on village tradition.[7] Also due to the high demand of commodities, the mentor-mentee module of craftmaking does not fit the mass requirement of industrialism.

Architecturally, the courtyard house simply reinforce this social structure based off family. Courtyard house, Chinese the most common dwelling type, is an ensemble of several freestanding structure with a shared outdoor space called yuanzi, a courtyard. All family live around the courtyard with a clear order and hierarchy from the eldest to the youngest. The courtyard was the spatial core and was a gathering place of the family. However, with the rapid change of social structure and rise of cities, courtyard houses are dying together with the old town fabric, as well as the activities used to happen in a courtyard. Craft itself in contemporary society has become merely a symbol or a memory, but the true craft-making tradition as a celebration and learning process and family activities is disappearing.

An authentic experience of village life

One of the most obvious phenomena is the construction of "villa" houses, an imported form of architecture from Italy and other western culture. However, any architecture form leaving the origin needs to be critically studied and carefully adopted to another culture, since the modernism of the city have made local folks lose the ability to judge and build their unique value, i.e the tradition.[8]

[7] Lan Zhao 赵岚, 2010, "Xiang Cun Wen Hua: Jie gou yu yang qi [Village Culture: the deconstruction and the adandonment]" *中华文化论坛 Zhong Hua Wen Hua Lun Tan[Chinese culture forum]* 01(January, 2010):114.

[8] Xia Zhao 赵霞, "Chuan Tong Xiang Cun Wen Hua de Zh Xi Wei Ji yu Jia Zhi Chong Jian [On the Order Changes and Value Reconstruction of Rural Culture]"

The limit of a tourism driven industry is its temporary yet not sustainable. For well-preserved villages, they can package the entire village as a museum for tourists and scholars to continue the study. However, this format simply transform the attraction of a village as a commodity to sell, yet not fundamentally solve the cultural and economic crisis of a village, let alone the small number of existing preserved villages. In order to save a village, one must study essential beauty of a village and its inhabitant's lifestyles. [9] The village needs to sustain through a kind of product rooted in the tradition and heritage, not merely a static architecture and museum.

Design Thesis: redesign, reclaim and rejuvenate

This thesis will investigate one of the typical villages, struggling with those social and physical changes. On one hand, it is pointless to stop the technology from improving people's living quality. The design needs to help locals and villages to set up a positive attitude towards technology and its convenience. On the other hand, the tradition and the culture that used to be a part of the villages need to continue and pass along to the next generation. This thesis questions is the paradox by Paul Ricoeur, which is "how to become modern and to return to sources, how to revive an old dormant civilization and take part in universal civilization."[10] The challenge of the thesis is to find a balance that can salvage the village and save the tradition without compromising necessary technology and modernism.

[9] Lan Zhao 赵岚, "Xiang Cun Wen Hua: Jie gou yu yang qi [Village Culture: the deconstruction and the adandonment]", 116, 2010.

[10] Paul Ricoeur, "Universal Civilization and National Cultures" (Evanston: Northwestern University Press, 1965) 276-7

The Japanese graphic artist Kenya Hara used the word “redesign” in his book *Designing the design*. He stated the power of rethinking fundamental elements of Japanese culture after the World War II culture crisis and how that design theory get to reform the design and creative industry in Japan.[11] Hara’s theory is one of the approaches to this question, starting from identifying the essence of the culture, in his case is the Japanese tradition, such as lifestyles and daily objects. This design thesis is to use the traditional crafts, and the local people’s living style to redesign the unique and poetic countryside. Studying the strength and attraction of the essential beauty of the countryside may bring the life back, and regenerate a confidence to the villager and countryside development.

In response to this critical situation of villages and regional architecture vanishing in China, the project will address the balance of both economical and spiritual remedies through reconfiguring the Chinese traditional courtyard form. The study of courtyard form will provide one kind of authentic reminiscent of Chinese traditional architecture. Besides, having the primary program as craft learning workshops and production studios could also reclaim the beauty of the traditional craft making. Ultimately, this redesign-reclaim-rejuvenate proposal may have adopted as part of the plan to salvage many ordinary villages in China. It provides a certain economic assistance to the local peasants, while maintaining the inspiring core.

This thesis will mostly research the northern Chinese courtyard and dwelling architecture typology. In the contemporary Chinese cultural context, northern China

[11] Ken'ya Hara, *Designing design* (Baden, Switzerland: Lars Müller Publishers, 2008).

region includes “the northeast, the region straddling the Great Wall, the Loess Plateau, and the north China Plain.”[12] These region’s dynamic geography and culture immersion throughout history have enriched this courtyard architecture language.

Figure 1. Map of northern China indicating as the white on the map (Source: China’s old Dwelling by Ronald G Knapp)

[12]Ronald G Knapp China’s Old Dwelling. *(*Honolulu: University of Hawaii Press, 1999). 167.

Chapter 2. Hequ-Dakou Region

History

Before the rise of railway and high-speed train system, Hequ was a significant trade center and port connecting the upper stream of the Yellow River in Shanxi Province.[13] Across from Hequ Shanxi, the land rises up becoming Mongolia Plateau. The higher altitude and latitude provides a better environment for grazing, creating the nomadic culture of Mongolia. Lacking essential necessities and commodities, Mongols aggressively harassed and robbed Chinese frontier provinces, one of which is Shanxi. To protect frontier villages from constant harassment and robbery, Chinese built the Great Wall Yellow river, creating a double defense system against the north border of China since 200 BC.

Figure 2. Hequ and other villages across the Yellow River in historical record

(Source: Hequ Xian Zhi Vol 1, Towns, territory and geography, from Creative Commons)

[13] Chunxiao, Cao et el. He qu xian zhi Vol 1-6 [河曲縣志: 6 卷]，1830.

Hequ-Dakou area is the critical intersection of the two cultures. Its development stimulated the expansion of agriculture, the interaction of two ethnic groups, and eventually the commercial culture.[14] The western and northern Shanxi Province is mostly fragmented mountains and arid climate in Shanxi, a typical Losse Plateau geography. The lack of flatland limits the cultivating land. Frequent floods and droughts made many people in Shanxi leave their home and try to escape across the Great Wall to Mongolia.[15] Since 1644, under the Manchu rule, Han people started to move to Mongolia across the Great Wall and the Yellow river to cultivate and develop settlements. The open policy solved the food crisis, and further stabilized the relationship with nomadic people. Meanwhile, the increasing demand for Chinese crafts, tea, crops and other produce from Mongolia and Russia boosted the bilateral trade path called "Xikou". The given name of Xikou means the west port of China; started the westward walking trade route connecting across Mongolia Plateau, and further to Russia. The route was active since late 17th century until modern China.[16]

[14] Huanfang Wang and Wuyu Bao, 王换芳，包乌云 "Zou Xi Kou Yi Min Yun Dong De Chengyin Ji Dui Meng Han Guan Xi de Yin Xiang "[The historical reason of Xikou migration and its impact to Han-Mongolian's bilateral relationship] 走西口移民运动的成因及对蒙汉关系的影响, *Journal of Enshi Technical College* [恩施职业技术学院学报]Vol. 27(2015), 41

[15] Qingping Liu, 刘青平, "Xi Kou Wen Hua Yu Qu Yu Jing Ji Fa Zhan" [Xikou Culture and Regional Economic Development]西口文化与区域经济发展, *Journal of Shanxi University* 35 (2012), 92

[16] Xizeng Li ed. Ji Shang Shi Liao Yu Yan Jiu "History and research on Shanxi merchants" [晋商史料与研究]. (Taiyuan: Shanxi Ren Min Press. 1996).

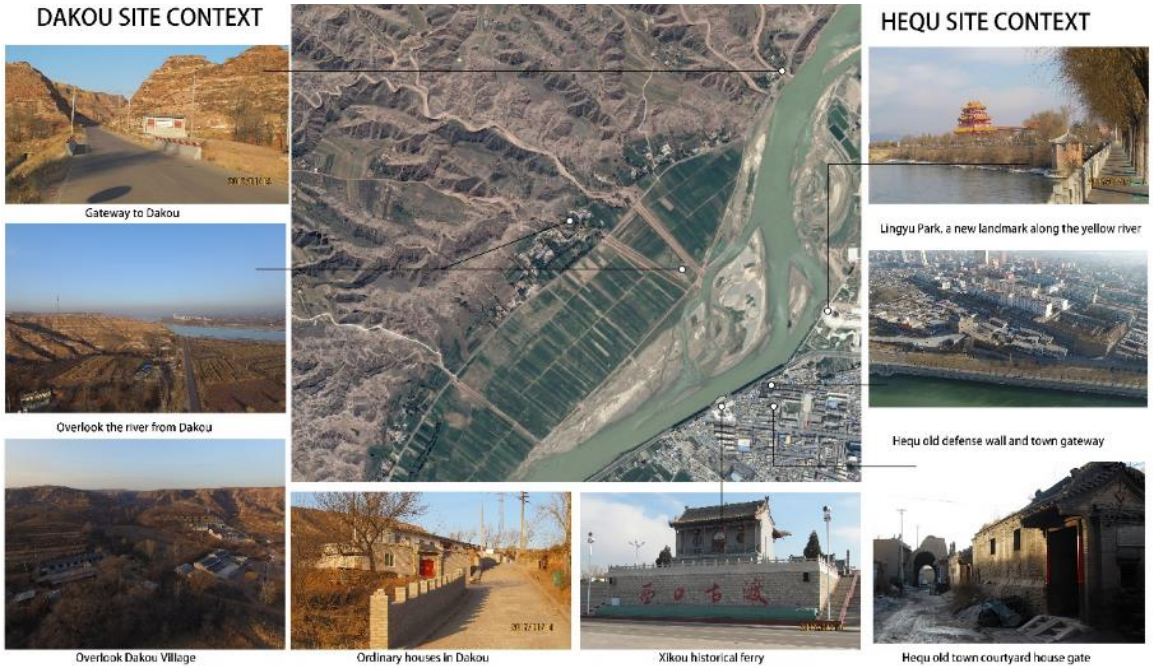

Figure 3. Dakou-Hequ site context comparison

Although it seems that agriculture is the primary industry in Dakou-Hequ region currently, it used to be the heart of cross-continent trade center. The traditional river cruise and land-commerce routes have been declining since the booming of railway system and air-travel. “Xikou” culture, a regional economic format connecting farmers and nomads, is one of the disappeared traditional commercial systems.[17] The current Hequ town preserved the symbolic part of the Xikou ferry port, a dragon temple. Ferry service from Xikou is primarily for tourists during peak season. Across from the river, facing Hequ is stripe of farming unions based on families. Those unions managed the 386 acres of farmland along the Yellow river. Dakou village is one of farming union. Locals take ferry off the Dakou port, 1-mile northeaster of the village to Hequ town center to

[17] Huaxia jingwei “ Shi Shi Lue Kao – Xikou zhi yi xi kou gu du”[The history of Xikou Ferry] 史事略考 • “西口”之一 西口古渡 http://www.huaxia.com/sxxz/xzwh/xkwh/xkzj/2014/02/3759790.html accessed Jan 15th, 2017.

shop, sell and visit. This local port was first recorded in local history record around 17th century. Unfortunately, the historical port was destroyed during Japan-China war in mid-20th century. The closest town is 40 minutes' drive away, called Longkou. Figure 2.2-2.4 show the locals

It is only 3 miles from Dakou to the border of Inner Mongolia (Meng)-ShaanXi (Shan) through road and Yellow River as the border of Inner Mongolia-Shanxi (Jin). The unique location and unique landscape has made fame of the town and therefore locals name this region, as place where "roster crowing across three provinces".

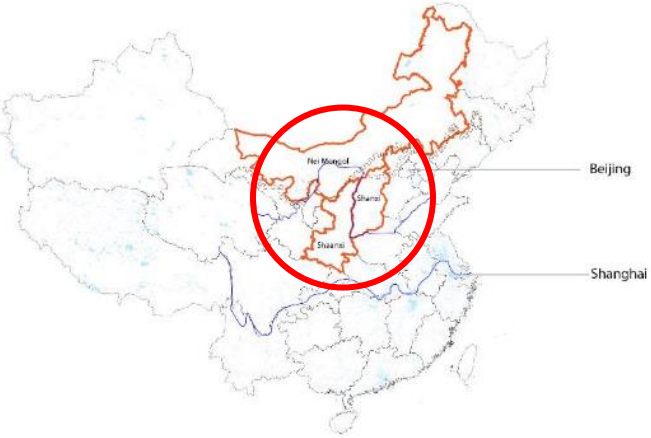

Figure 4. Map of the site at the border among Shaanxi, Inner Mongolia and Shanxi and the zoom in view below

River fronts

To across the river getting Hequ, villagers take ferry from either the upper north entrance of the Dakou village, across from the Temple, or through Dazhan village ferry. The ferryboat can take up to two cars. Even though Xikou port still function as a ferry, it comes less commercial and more serve for the recreational and leisure purposes, especially during local events and holidays. The location of the utilitarian ferry on the edge of the strengthen the cultural significance of the Xikou historical ferry.

Figure 5. Ferry port outside of Dakou village

Figure 6. Villagers traveling from utilitarian ferry ports

(Credit to user cll16 on Panoramio, Google Earth)

Figure 7. Xikou port, Dragon temple

Figure 8. Xikou port urban plaza

Floodplain, mountains and climates

The floodplain created by the power of Longkou gorge becomes the flourish and reliable farmland of Dakou villager. Figure 2.5 farm – in relationship to the floodplain shows that the majority of Hequ's suburb and Dakou village use floodplain to grow crops. Sitting at the intersection of Mongolia and Losse Plateau gives Dakou a relatively stable and suitable climate for agriculture development. Dakou has a continental temperate climate. Winters are long, dry, and cold, summers short and hot. Most of the rainfall happens in July, August and September with average rainfall 450 mm(17.7in). Compared to many other agricultural settlements further in the north of Inner Mongolia, Dakou has a short frost-free period with about 150 days. It allows growing varieties of produces, such as watermelons, yams, wild apples and cotton, besides common economic produce like sorghum, hemp, potatoes and millet.

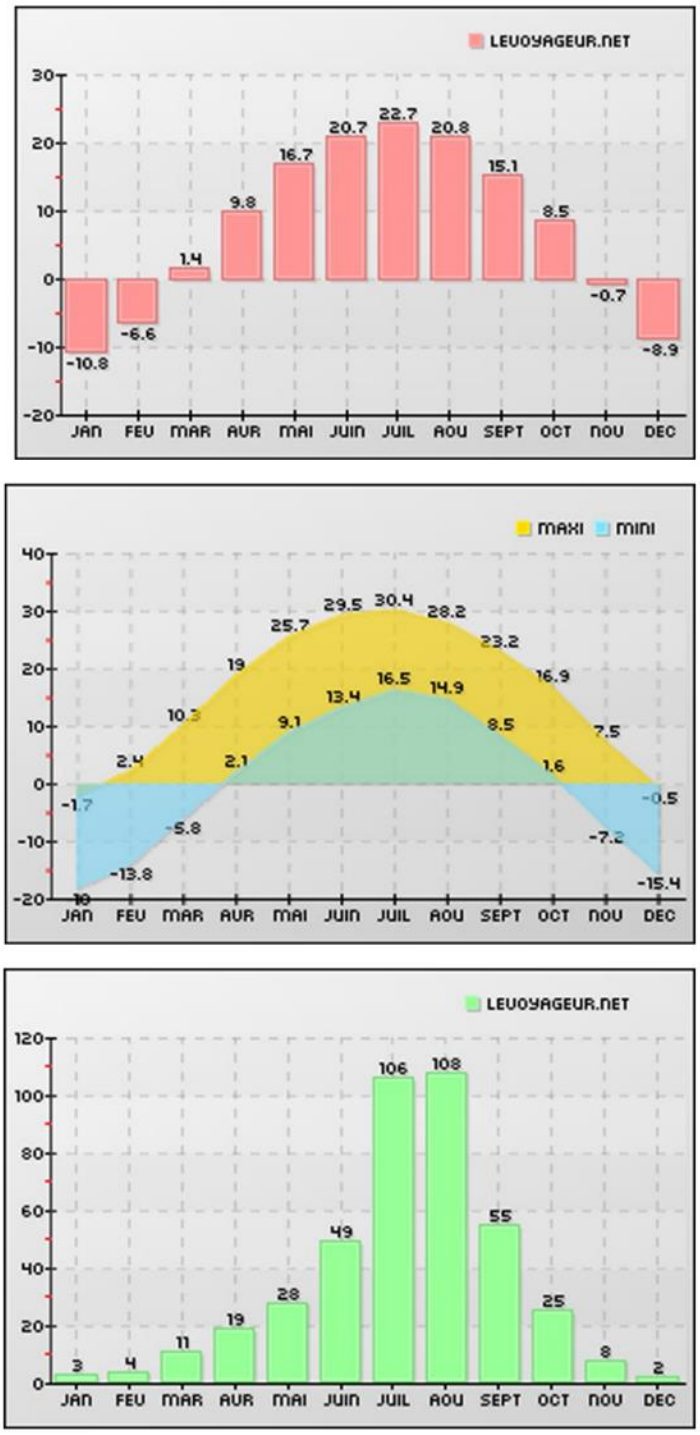

Figure 9. Local climate date, diagrams from top to bottom are: average temperature (Celsius), average max and min temperature (Celsius), and average precipitation (millimeter)

(source: http://www.levoyageur.net/weather-city-HEQU.html)

A juxtaposition of settlements, Pastoral V.S. Urban

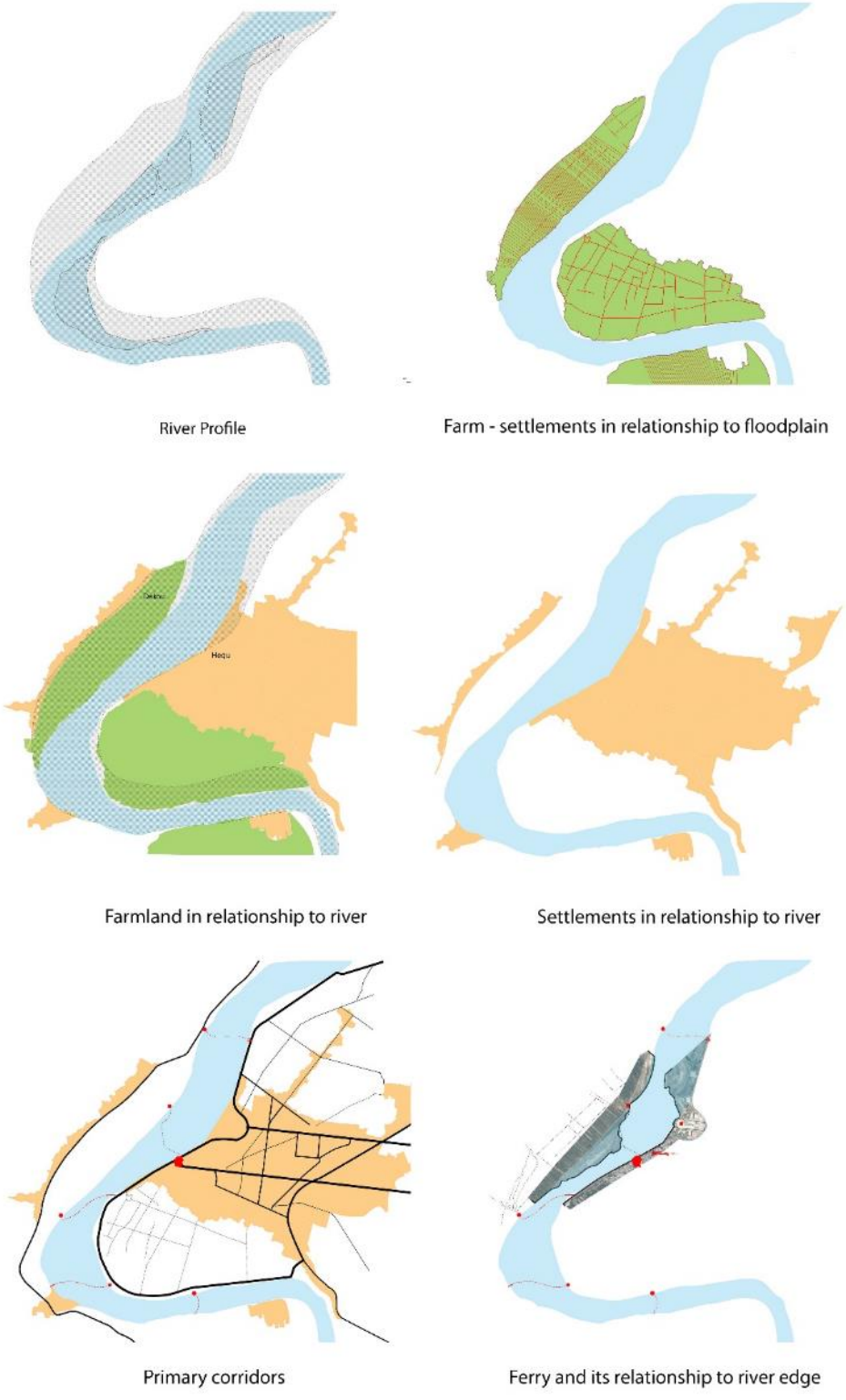

Figure 10. Site analysis – the relationship between built environment and natural landscape

This set of site analysis diagram shows the close the three layers of natural landscape: the river, farmlands and mountains. The landscape creates the unique form of urban fabric. Hequ and Dakou has completely different river front, which ignores the early history of the commercial development and interaction. The juxtaposition of two type of built environments also explains the disappearing of the vernacular architecture and its culture. The pastoral landscape in Dakou represents the vernacular and traditional philosophy between human and nature. On the other hand, Hequ is transforming the landscape towards modernism, revealing less about the nature but more about infrastructure and convenience. It is the critical comparison of the two places, as it represents a gradual evolution of urbanism. therefore, it is necessary to represent the changes from one side the river to another to visitors and people.

Varieties of landscape and their tourism value

This region because of its rough landscape and hill topography has attract many tourists. Figure 2.10 below shows the relative distance of each of the attractions to Dakou and the ways of approach. In general, Dakou is the gateway from Shanxi and other southern province to many Inner Mongolia attractions to many attractions in the Jin-Meng-Shan region and therefore draws in visitors and users of the proposed building.

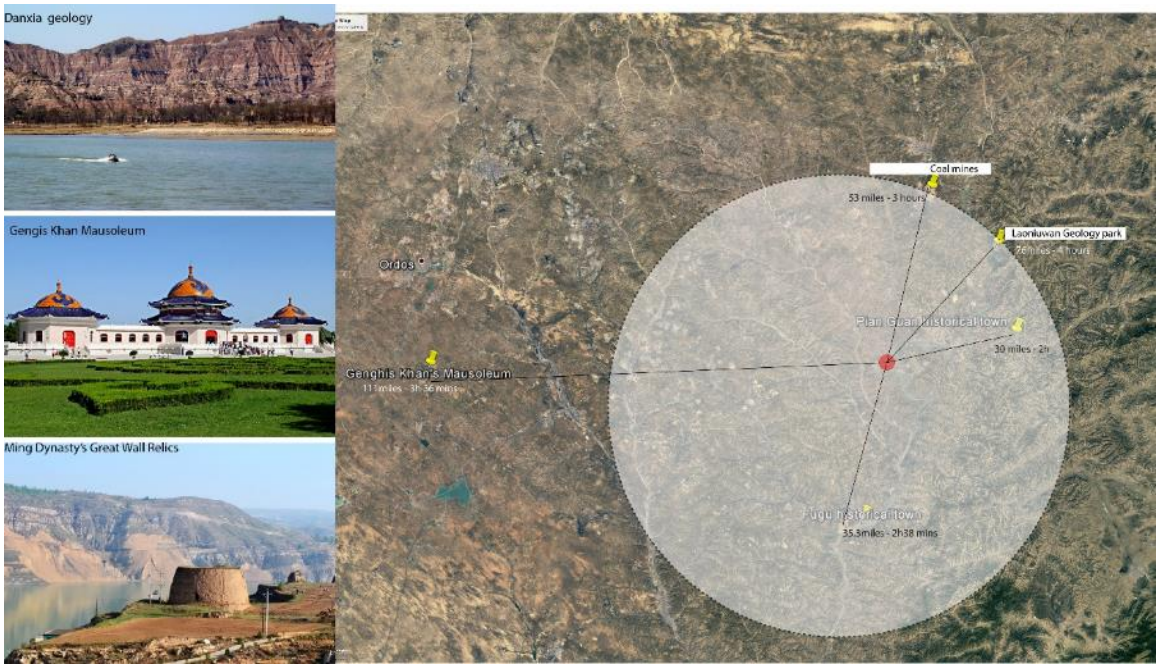

Figure 11. Attractions and destinations around the site

Loess

> *"Deposition is clearly and widely recorded in North China. During the Middle Pleistocene the most common type of deposit consisted of red slop-wash clays and thick red loamy alluvium…The material time was a fine loamy silt laid by wind and known as huangtu (yellow earth) or loess."*[18]

Danxia landform

> *It refers to various landscapes found in southeast, southwest and northwest China that "consist of a red bed characterized by steep cliffs". It is a unique type of petrographic geomorphology found in China. Danxia landform is formed from red-colored sandstones and conglomerates of largely Cretaceous age.*[19]

[18] Tuan, *China*, 15
[19] *"Danxia Landform of China". whc.unesco.org. Retrieved 2009-12-16*

Coal mine

Shan-Jin-Meng region has a vast amount of both deep and shallow underground coalmines. It is the most important industry for this area of China. People who choose to visit the area by car are particularly interested in visiting several coalmines.

Hydropower plants of Longkou

This recently constructed hydro-power plant is located 20 miles north of Dakou village. Its hydro-power relies on the flashy volume of water coming from the Mongolia Plateau entering the narrow Longkou gorge. Longkou gorge together with the power plant attracts a lot of seasonal tourists during summer and fall.

Ming Dynasty Great Wall

Many of the citadels still stand along the mountain range north of Dakou village.

Kenghis Khan's Mausoleum

The only well documented mausoleum hosting memorial events annually to memory Kenghis Khan, the spiritual hero of Mongolians. The mausoleum is located 200 km away from the Hequ-Dakou site, 4 hours via road traffic.

Summary and site design strategies

It is clear that the site sits on the border of two interdependent cultures that have both taken hundreds of years to form. However, many daily activities from Dakou and Hequ are embedded with the existing geographical situation and similar culture background. The challenge for the design is to how to introduce this bilateral condition and develop visitor's awareness of the form of the culture. One of the possible method is

to reveal and fully engage with the activities that would remind the history. Because of the complex composition of the site and its surrounding, it is necessary to incorporate a sequence of activities to give introduction of the place making decision later about the building in Dakou.

1. Reclaim the ferry culture

Because of the significance of Xikou ferry and being the symbol of exchange between two culture and provinces, it is necessary to bring the people to the site of the thesis design with Xikou ferry as their departure point. The fully exposure to the long scroll of scenic landscape of Losse plateau is the first step of the journey. The width of the river between Xikou ferries to the potential drop off ferry at Dakou is 0.64 miles, which takes 10 mins to across the river through low-power ferry boat. Having three ferries also help to separate vehicular ferry transportation and pedestrians. Ideally, Xikou ferry will carry the majority of people without cars and the current commercial ferry outside of Hequ city core will carry visitors who prefer to across the river with their cars.

2. Embrace the agriculture activities

Farmland along the river not only provide abundant food and economic resources, but also have a significant educational impact for the visitors. The farmland also plays an important role connecting the riverfront to the settlements. The long linear strips of farmland division indicates the simple but effective settlement pattern that connects the mountain and river perpendicularly. The wisdom of using floodplain to cultivate yet settle against the edge of floodplain follows the fundamental site selection in natural condition. To respect this tradition and pattern, the building will be located together as

other dwellings against the mountain bottom facing the farmland, river and Hequ across from the river.

3. Utilize the regional feature of landscape, resources and other tourism destination for potential visitors

Various tourism from all direction and different kinds of visitors brings a huge potential for Dakou village as part of the regional tourism network. However, most of the scenic attraction, relics and natural features won't hold tourist's overnights. To hold the amount of tourism through a long process of activity and village experience can help stabilize the seasonal tourism in the region. The program chapter will future analysis the potential activities happening in the region to enrich people's visiting experience.

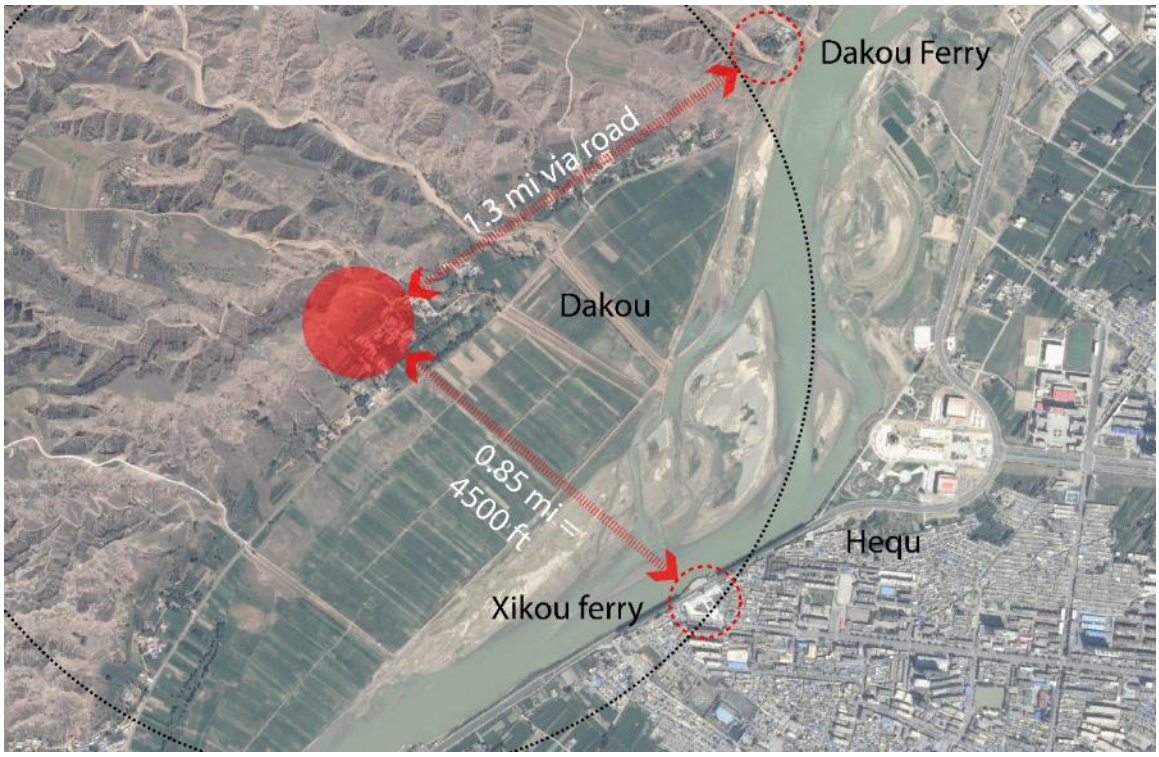

Figure 12. Site Choice

Site selection considering the linkage to the ferry

As we can see from the figure 2.9, river, farmland and the mountain landscape forms a close correlation. The proposal of the facility will highlight the influence of the landscape to building design and daylit the relationship through a sequential arrival path. In addition, the site selection area creates a dialogue could also create a distance dialogue between Dakou and Hequ, forming a vernacular landmark as Xikou port.

Immediate site analysis

Figure 13. Site Plan of Dakou Village

This is a zoom-in site plan basemap zooming into the select area on Figure 2.11. Red building indicates cultural/public building. In the drawing, the red one on the left is a temple, and the further right is an elementary school. Almost all the buildings built on site is above altitude 3002 ft, which is the boundary of the floodplain. However,

based on the location of the two existing cultural/public building, it seems logic to place the site to a higher location. It provides a clear visual message to visitors and locals.

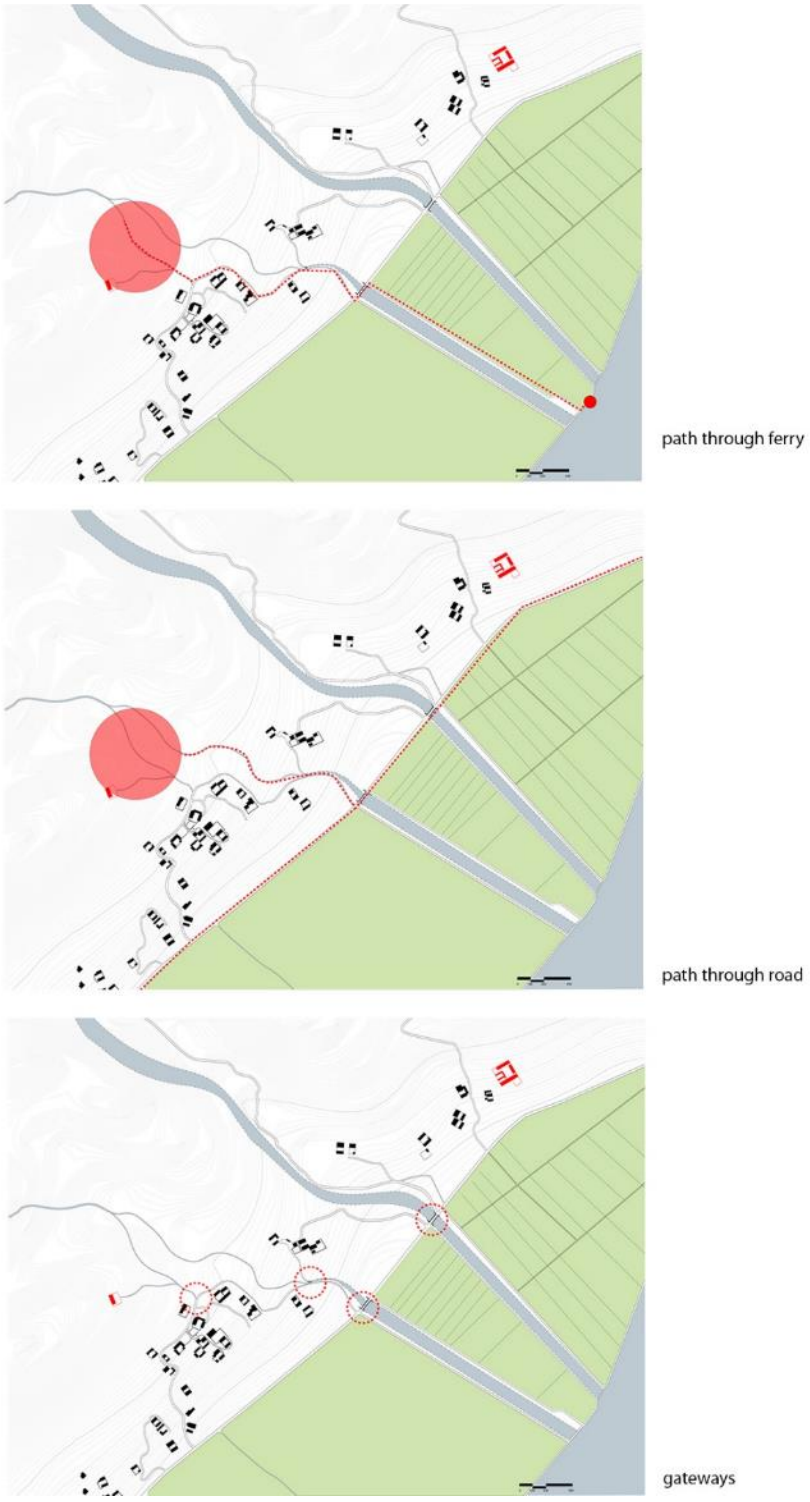

Figure 14. Approaches to the sites and potential gateway to the facility site

Gateway

The diagram above shows the two possible approach via either ferry or road. The only two methods to get to the site. The gateway highlights area that both approach will potentially pass to enter the site. Gateway is very critical in rural area like Dakou. Gateway architecture is a very important feature in Chinese tradition. However, Dakou village does not have specific gateway. All the agricultural unions along the river has no gateway, instead only signs. On the other side, Hequ still preserve some of the old gateway entering the old town. Although it is adequate to indicate entering a place through signs like the figure ____ shows, the current design of all the village signs does

not work as an architectural structural. Again, it is because the dominate road traffic in the area.

Figure 15. Gateway in Hequ and Dakou

Site options

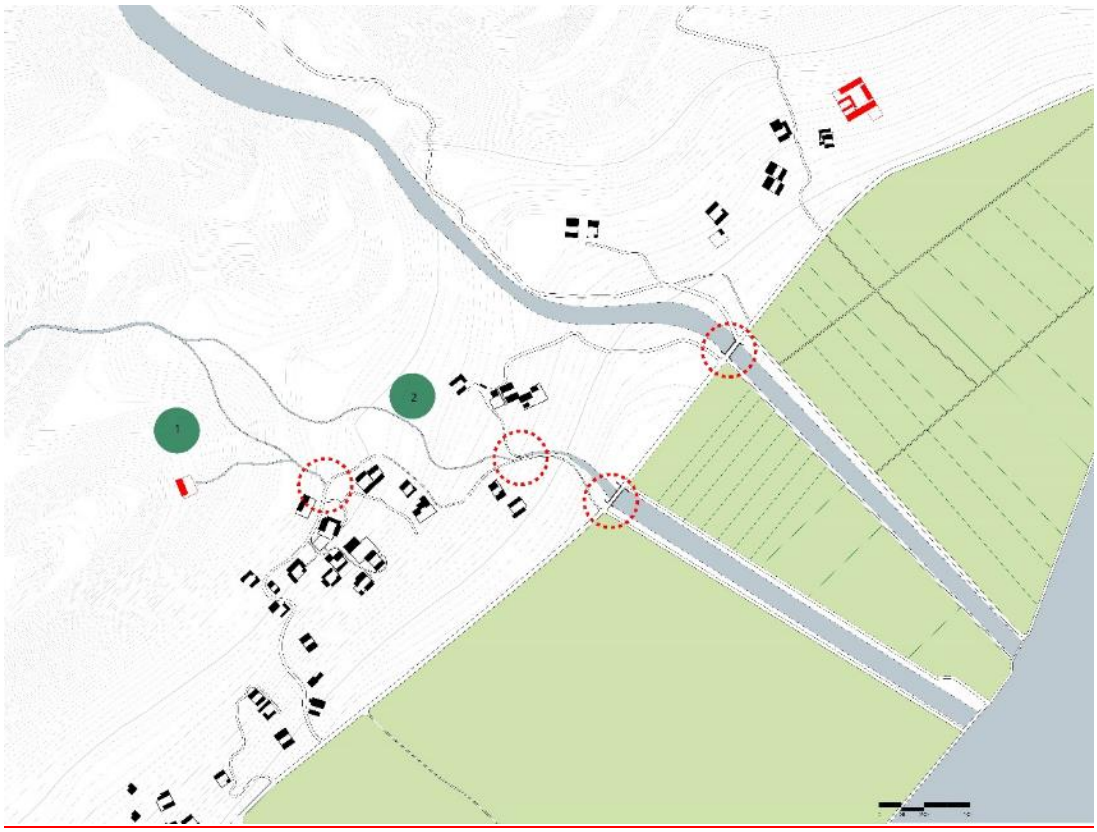

Figure 16. Site options for facility design. The two choices are both facing the river, with similar topography

Currently, the two location shown in the diagram has the same footprint, 30,000 sq ft. The differences of the two location is their distance to the village and topographical location. Although they are both on the hill, the slope of two sites are about the same. It means the construction of the building may use the same technique and typology as reference.

The two locations are about 800-1000 ft. apart, within 5 minutes' walk. Another approach to the site design is design two facility based on public vs. private relationship. Location #2 in the diagram in this case would serve as a public segment of the overall

program, while location 1, higher on the site could serve as a rather private and monastic place for artists and researchers.

Chinese village layout

There are two major category of shape and layout of Chinese villages: nucleated and dispersed. Density of population and the geographical condition both determine which category a village belongs. In Dakou-Hequ region, villages are mostly along the river against the mountains, creating a “elongated” or “linear”(*daizhuang*) regional layout. Further looking at the traditional Chinese dwelling habitat, a linear village is most likely to stretch east-west direction so settlements are built with north south orientation can maximize natural ventilation and better solar gain. Looking at each of the villages along the river, it looks more dispersed.

In order to understand the landform and the relationship of the village layout, it is necessary to study the relationship between built environment and landscape. This series diagram below represent an analytical approach to understand the potential reason for Dakou’s layout. The hypothesis is that the selection of each settled dwelling and groups of houses depends on the availability of ground water, through signs of vegetation groing. From the ecological standpoint, it is reasonable to conclude that the early settlers chose places to build where they can find reliable water resources so they can have stable agricultural and domestic activities.

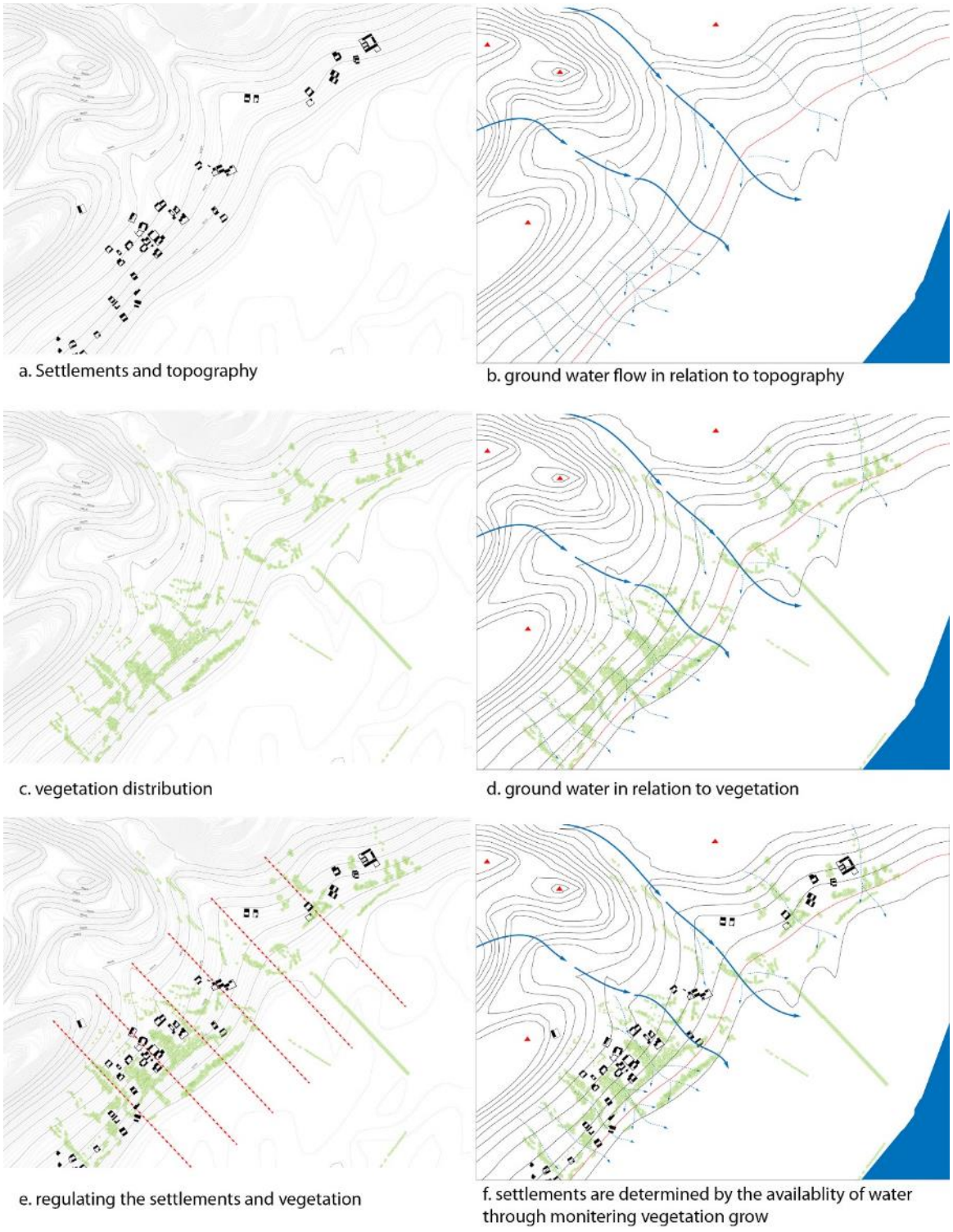

Figure 17. Diagram series showing the hypothetical village form reason and determinant

Chapter 3. Program Analysis

Collections of crafts and their studio requirements

Pottery

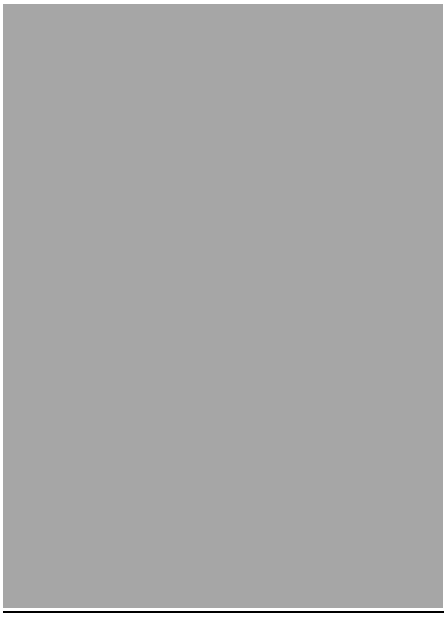

Figure 18. a throw wheel pottery-making scene (source: http://m.91ddcc.com/t/66405)

Clay is one of the major side product of coalmine. Shanxi province also has a very long history making pottery and ceramic product. Depending on the format of teaching and artist's habit of working, pottery studio can vary a lot based on the making process. However, in general, it requires equipment such as throwing machine, slab roller and kilns.

Pottery studio will be equipped with both hand sculpting space and throwing machine space. The firing space can be either included in the studio, or a separate area. Usually in the modern craft school, potters use gas kiln, and electric kiln. When firing a large number of pottery at one time, artists also uses traditional firing such as wood firing

or furnace firing. In total, a pottery studio needs minimal from 700-1200 sq ft space, depending on the type of pottery making process.

Besides firing equipment, the studio requires a lot of storage space for raw material, pottery art pieces before and after firing. Before glazing and final firing, the pottery usually needs to be placed in a moist and shaded area to prevent deformation.

The diagram below shows a site visit in Torpedo Factory Art Center. Susan Cohen is one of the resident potter at the art center. She occupied mostly a 12 x 10 space for hand sculpting and light amount of wheel throwing through a portable pedal operating wheel machine to the right. She mentioned that this studio is shared by four potters, and the size of the work space is quite common and even in Torpedo Factory Art Center.

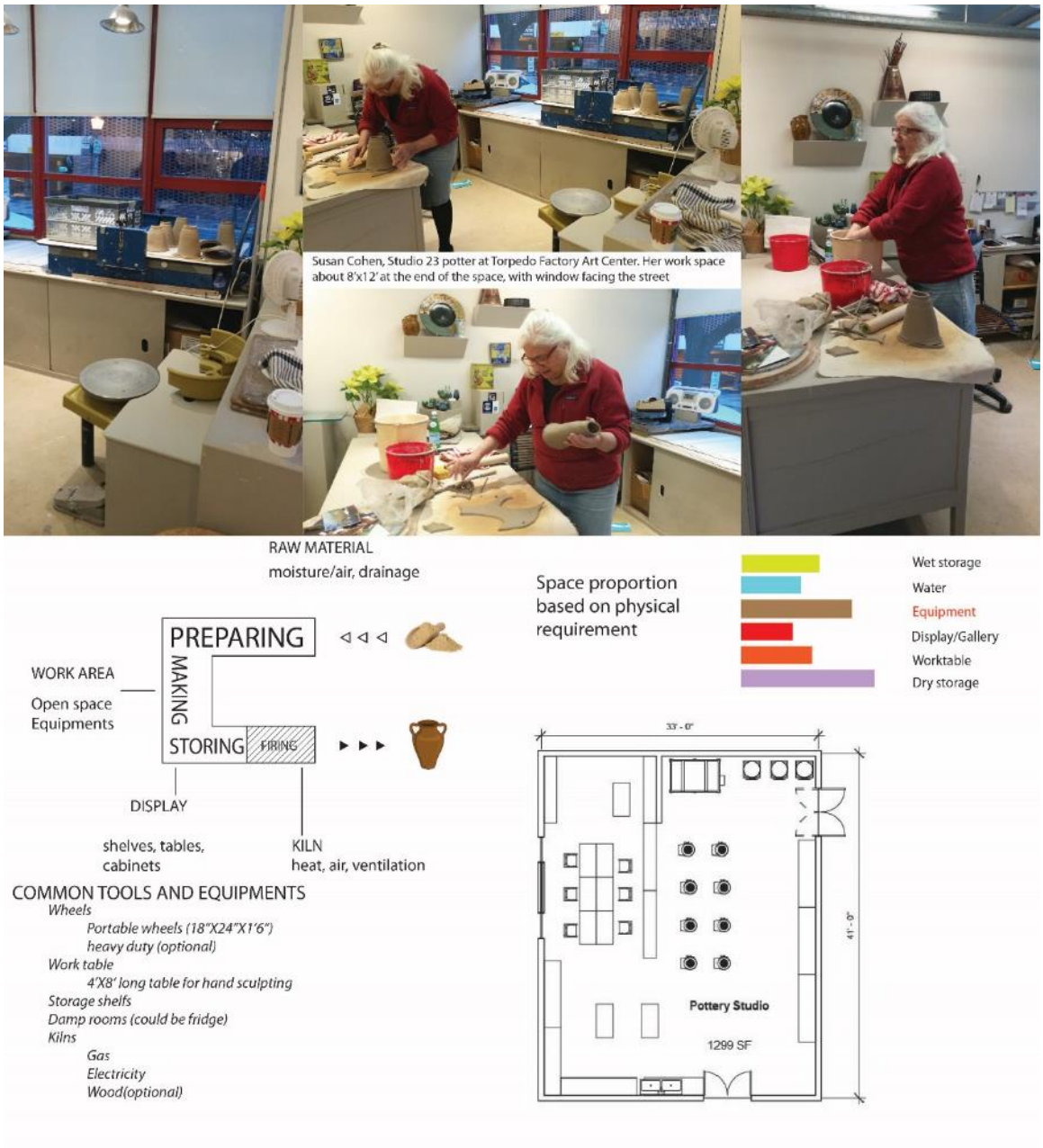

Figure 19. Pottery Making process in Torpedo Factory Art Center, and required spaces

Paper artifacts

Northern China uses hemp as the primary material for making paper. It is widely grown along the wetland along the river and. Some farmer grow then to sell on the market. Artists will cook the hemp with limestone powder to soften the fiber. The

cooked fiber will place in spinning wheel machine with a lot of water to form a suspension state. Artist then will use different size of molds and deckles to string the slurry liquid, transport to wet felt blanket and further press and dehydrate. A complete thin layer of damp paper will be lay flat on a dry clean surface to be either air dry or heat dry.

Every year lunar calendar July 15th, people in Hequ-Dakou will place paper lantern on the Yellow River to memory their ancestors and pasted relatives who went across the river to pursue better life. Paper lantern becomes a major crafts used in local events and celebration.

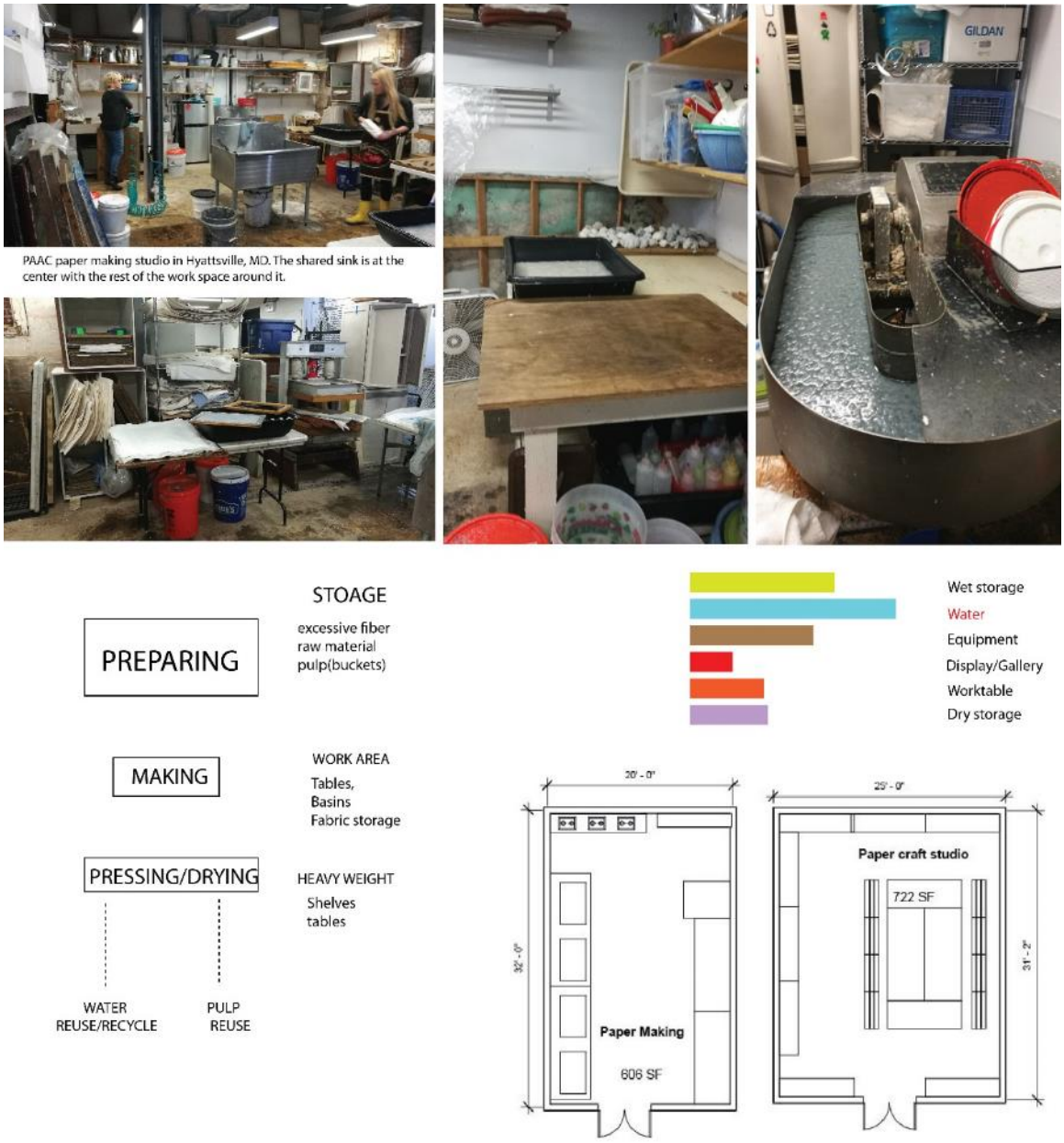

Figure 20. Paper making process and require spaces and proposed studio size

The paper studio includes a paper making space and a classroom for paper artifacts making. As we can see from figure 3.3, Papermaking requires a lot of use of water and cooking. In PAAC paper making studio, the space uses a standard warehouse space with a big sink and floor drainage. The working space is around the sink. During a

four-person workshop, the space is 95% utilized, while most of the occasion only 2-3 people using the space. The space will have a 32 ft long wall to implement big sinks and stove area to process raw material. The classroom will have large flat shelf storage spaces to store different type of paper, and hanging wall surface for tools. Totally, the paper studio requires around 1000-1300 sq ft space. In paac paper making studio, the artists mostly use portable water, having no recycle water equipment. In the proposed paper making studio, a water recycle and filtration system can be introduced to maximize the water use, as Dakou-Hequ has limit amount of underground water for domestic use. River water according to Greg, the paper making instructor, is also a good and ancient water resource for paper making.

Textile artwork

Tiger toy is a common handmade toy by the elder generation to pass on to the young generation. They are usually made of stitched colorful clothes and stuffed with local crops such as beans and barley. The harvests produce stuffed artificial art piece also carry best wishes for a prosperous year in the future.

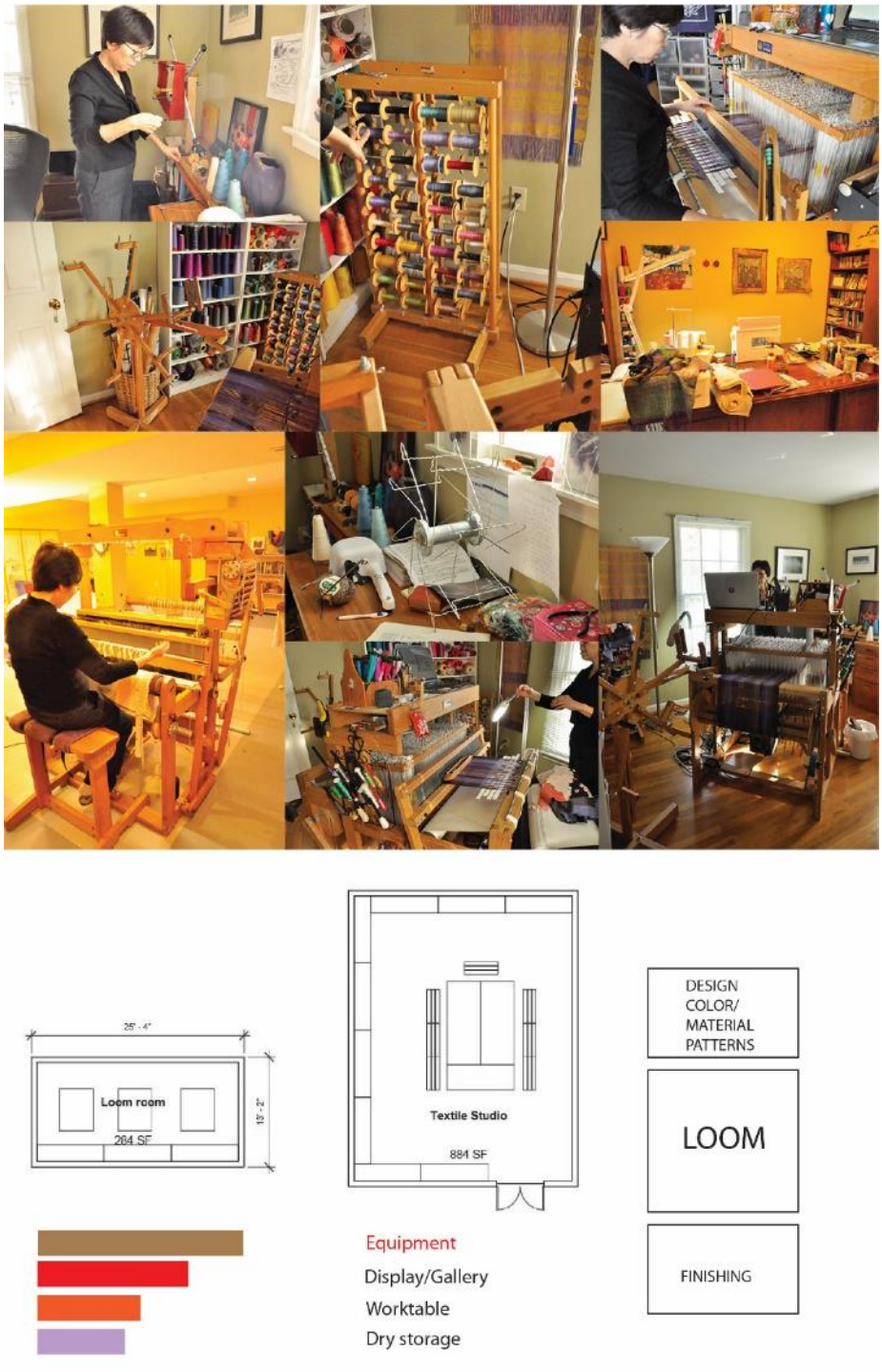

Figure 21. Heasoon's studio showing process of textile design and proposed space

Heasoon is a textile Chemist and designer. She works as a freelance as well as resident artist at Torbedo Factory art school. She presented her studio space at home to

demonstrate common machines and other space organizers she used as an artist. According to her experience working over 20 years on textile design, a textile studio needs a good daylight and ventilation design. The daylight helps to evaluate fabric color better. The looming process could generate a lot of micro dust particle, thus requiring ventilation frequently. In addition, when working on yarn in a dry space, it may generate static electricity.

Textile art studio requires spaces for both floor loom, table loom and large storage spaces of yarn, fabric and tools. Besides traditional loom, the studio also includes a felt making space.

Fermented food

As previously introduced, this region has prolonged winter that does not allow harvesting crops and produce. Fermentation is a primary way to preserve fresh vegetable and it is still popular regionally and is a feature part of local food. Food area preserved in a jar with ingredients and spices to let bacterial break down Besides fermented vegetable, broomcorn based alcohol and barley based black vinegar are also nationally famous. All these food-processing techniques passed along with other regional culture. The skills of transforming seasonally available food resources to a long-lasted form also shows the wisdom of local people to live sustainably and adaptively.

The cooking studio will utilize a part of the kitchen and storage room to demonstrate fermenting process. To make people aware of the daily cooking, the kitchen will use a large amount of glazing space to allow people to see through.

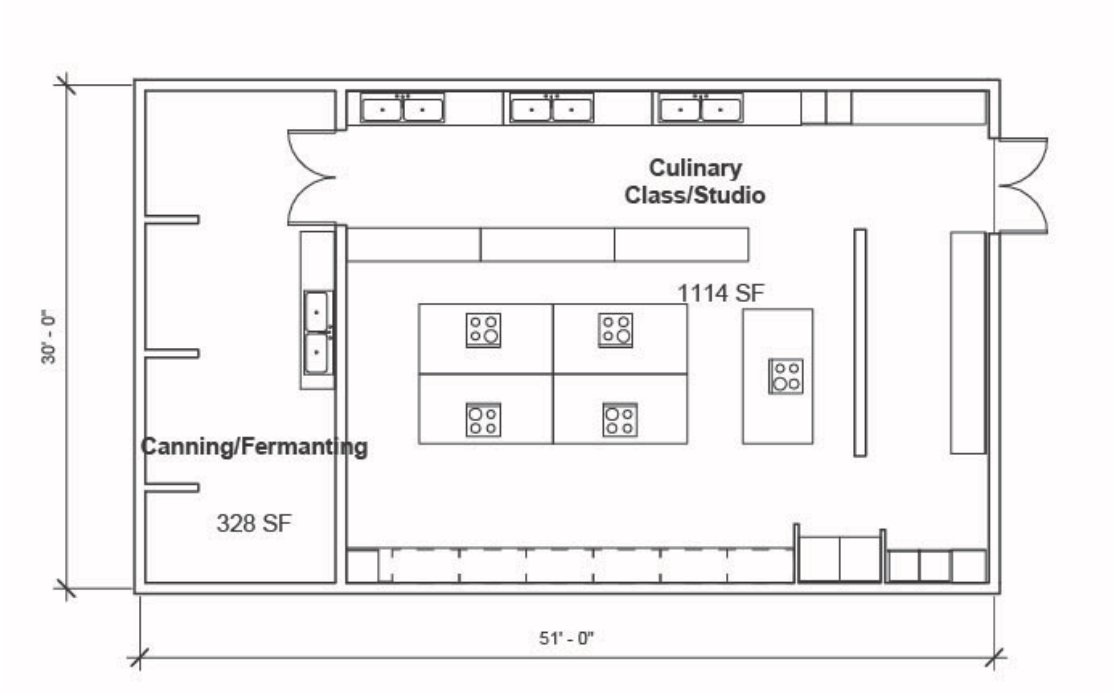

Figure 22. Culinary Studio, kitchen and food process room size proposal

Program Components

The program of the purposed facility will include two major components: a craft school and a culture center. The craft school will teach, mentor and practice four local crafts, such as pottery, textile product, paper artifacts and food. The culture center will include most of the public activates, offices for administration and help organize tours. The interaction of the two components will be a part where all users get together and form a closed loop of village experience.

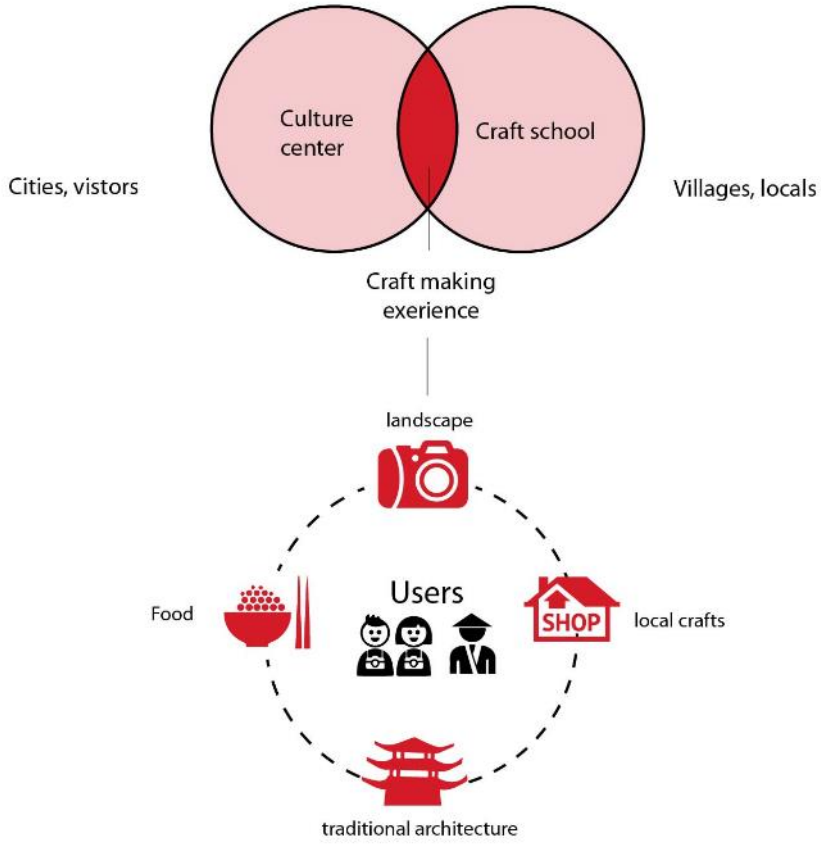

Figure 23. Program diagram of the proposed facility

A series of craftmaking experiences will act as a connection between the village and the craft school, such as hosting exhibitions and celebration during Chinese holiday. The separation of the school and culture center helps to maintain a part of the facility profitable, and at the same time preserve a private and monastic environment to immerse and produce. The purpose of having both a culture center and craft school is to integrate tourism with continuing studies of crafts. Finally, artists and researches such as professors on sabbatical leave could use a private suite to conduct intensive research and production.

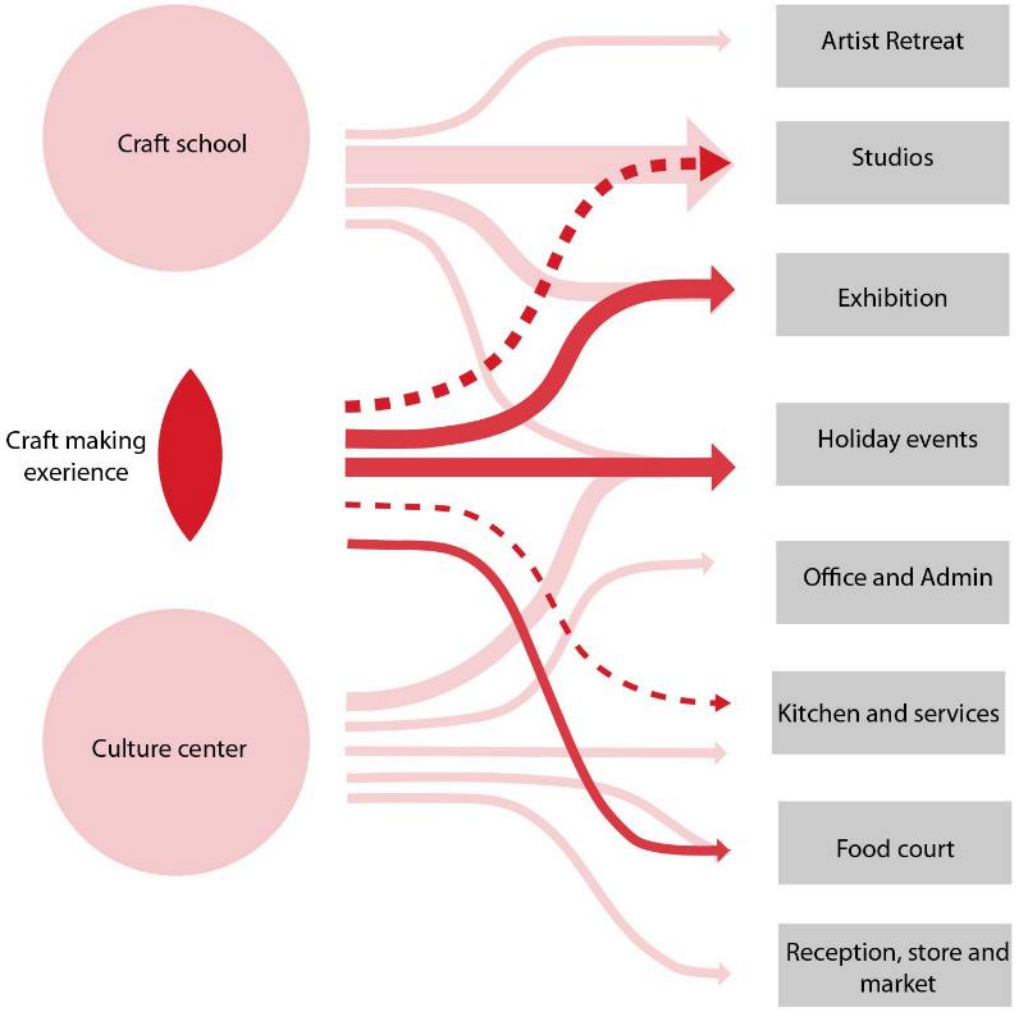

Figure 24. Program space flow chart, showing independent and overlapping spaces (source: author)

The season is very unbalanced in the Dakou-Hequ area, which means not all activities can be year-round. The diagram below shows the frequency of each program throughout in four season. Bringing artists as residents in the village will help to maintain the function as a craft-making center; it will also allow a quiet and productive mode for the artists in the off-peak season with fewer tourist's distractions.

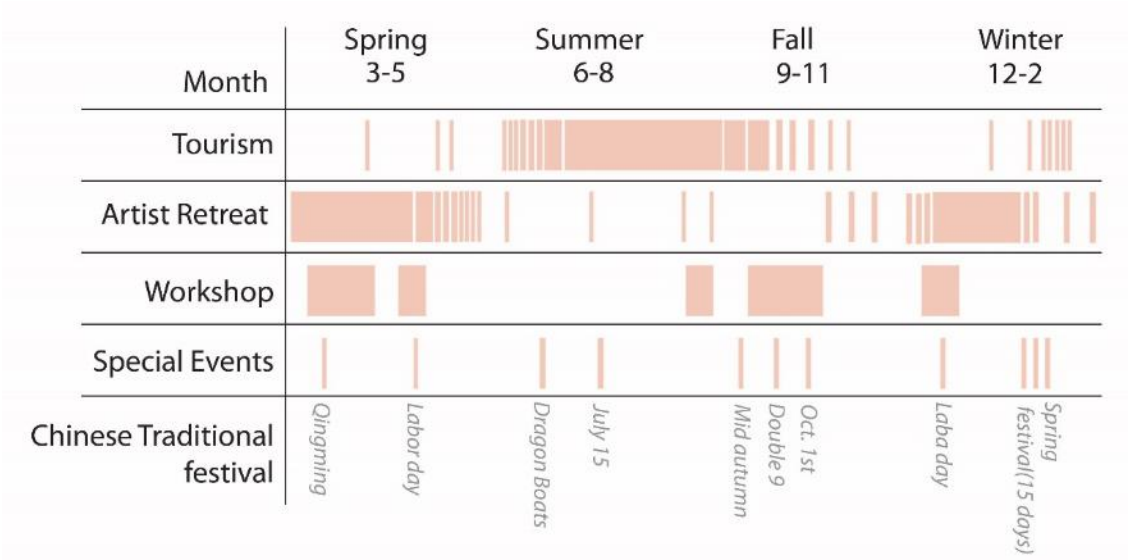

Figure 25. Program proposal based on seasons

Based on the required space for each studio, the total space for the program is about 10, 518 sq. ft. The floor area is based on the condition of having only one artist retreat suit. In the program date chart, a suite includes a bathroom, parlour, kitchenette and artist bedroom, total 300 sq. ft. If the retreat suite is more than 1, it means the total

floor area will be 10218 plus the number of retreat suites.

Proposed Program Data	
Area	Name
41 SF	Bath
68 SF	Parlour
87 SF	kitchenette
107 SF	Artist bedroom
150 SF	Restroom
150 SF	Restroom
150 SF	Storage
150 SF	Storage
181 SF	Artist studio
284 SF	Loom room
328 SF	Canning/Fermanting
330 SF	Mechanical
606 SF	Paper Making
722 SF	Paper craft studio
884 SF	Textile Studio
1114 SF	Culinary Class/Studio
1210 SF	Lobby/Entry/Library
1211 SF	Dining
1299 SF	Pottery Studio
1447 SF	Gallery/Shop
10518 SF	

Figure 26. Proposed program floor area

Chapter 4. Case study

Vernacular Architecture: Courtyard

Courtyard form is the most common and versatile housing typology in China. Figure 27 is one of the local examples of a courtyard house. Its broad definition means a dwelling with enclosed outdoor space, *yuanzi.* Chinese people consider the courtyard is the place where human and landscape get along and creates a harmony. The yard takes about 40% of the total area of a courtyard dwelling. This is also a place where family getting together, practicing domestic activities and socializing with guests. This picture below shows how Dakou local people utilize the courtyard.

Figure 27. a Dakou village courtyard house showing the function and the overall layout of the court.

Vernacular courtyard house designed by ordinary people is less decorative and more utilitarian. If courtyard by loose definition means an enclosed space, there are 4 types of courtyard houses widely built in northern China. The diagram below shows the four types.

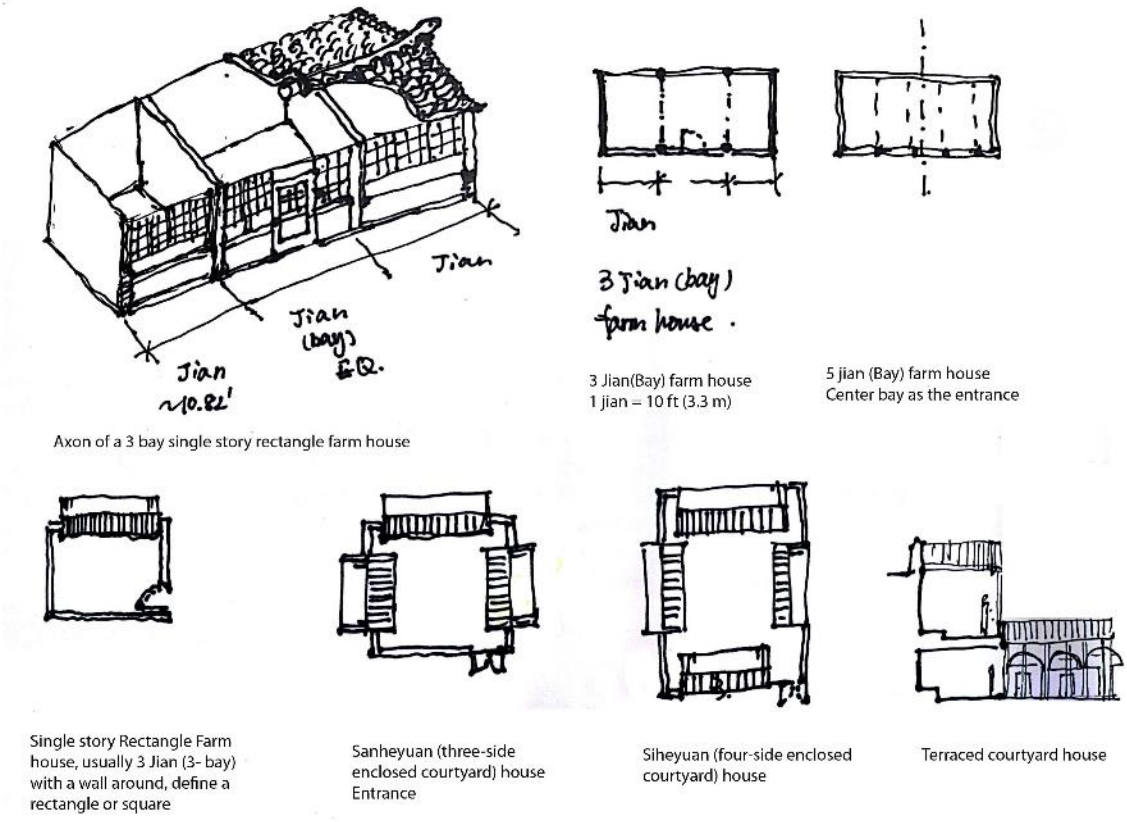

Figure 28. Basic courtyard form in northern China

To create a large space, people would expand the courtyard through expanding the four basic form shown as Figure 28. The most common case is the combination of commercial and residential space by merchants through a series of courtyard sequence. The two example below are located in rural area of Beijing, sharing the fundamental same building types.

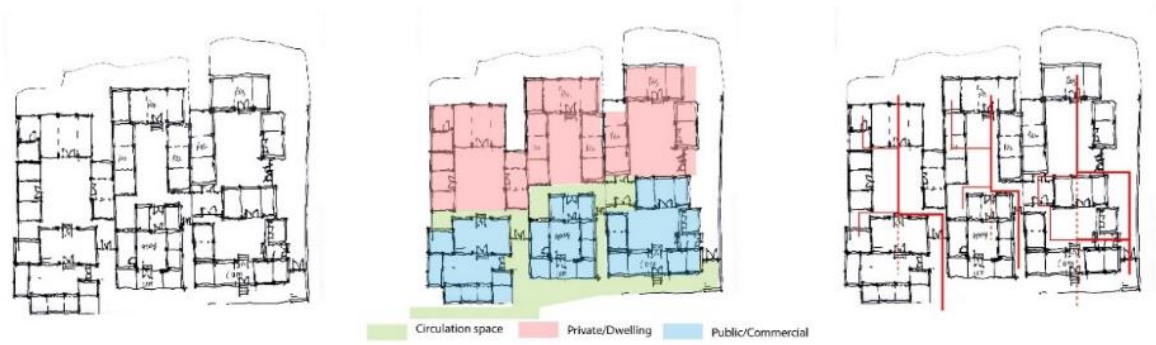

Figure 29. Cuan di xia village in Men Tou Gou, Beijing

If the site has considerable topographical change, the courtyard usually will place the most significant and private place, such as unmarried daughter's room or master bedroom on the highest level. It provides layers of thresholds, protecting privacy.

Shanxi is a very hilly province, making it challenging to have a horizontal expanding courtyard house. The most common solution for the topography yet maintaining the courtyard form is to create a stepping terrace.

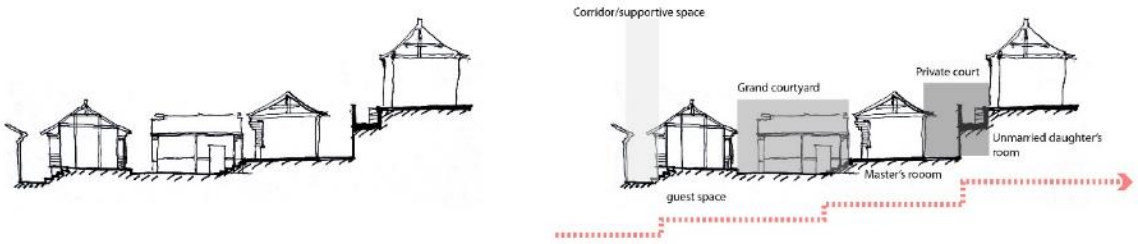

Figure30. Terrace courtyard layout and hierarchy based on topography

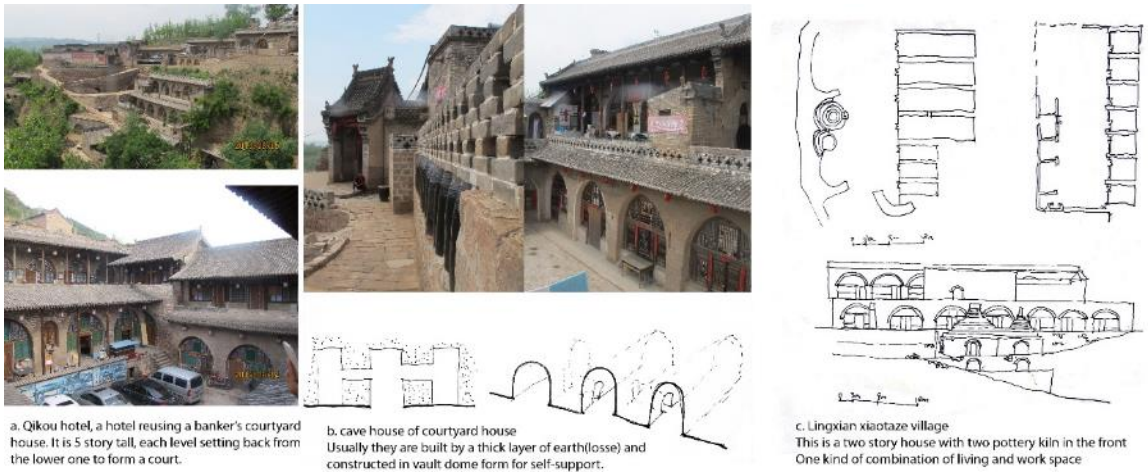

Figure 31. Sub terrain houses in Shanxi and Inner Mongolia on Losses Plateau

When the courtyard houses are built upon the hills with very steep topography. The formal form of terrace is no longer feasible. The losses plateau area along the yellow river basin has very fragile landform. The sub terrain house, or cave houses are built against the hill to make use of the topography and thick layer of losses. This form is the best for this climate as it is very dry, keeping the losses stable and durable. The use of earth as the structure and wall also provides a good balance of heating and cooling due to the high heat capacity of earth and soil.

Program precedents:

The case studies and diagrams below help to understand how creative art space is organized, promoted and designed in various location and different cultural background.

Torpedo Factory Art School

Program: Art gallery, craft school and museum

Site: Alexandria, VA, USA

Site and building area: 30000 sq ft

Torpedo Factory Art School is associated with City of Alexandria, Office of Art. It is a local crafts and artists enclave with 78 artists' studios, Art league school,

exhibitions and craft shops. It is an adaptive reuse building out of a torpedo factory. The building creates a three-story vertical atria and corridors spaces for all users to circulate. Studios, classrooms and all other programs are along the periphery of the building, maximizing the daylight through windows. First floor of the building is comprising of 10 studios, mostly ceramics and textile art, with each of them shared by 4-8 artists depending on the disciplines. Each studio is both a shop, and store displaying artifacts as a gallery. Each studio run by resident artists with a fixed schedule. The Art League School and a few artist studios, mostly painting and jewelry arts reserves second floor space with a common shared corridor. Third floor space is for an archaeology research institute and its museum, mostly private offices and classrooms.

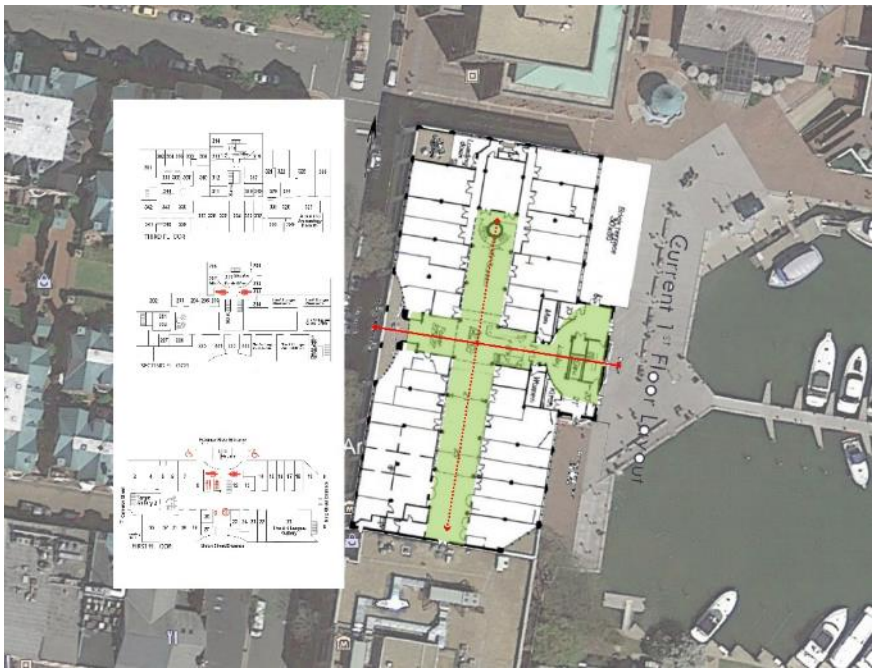

Figure 32. Torpedo Factory Art Center (source: author)

Takeaway: The building shows how three different spaces can be organized and connected by architecturally adapt an old form, in this case a torpedo factory.

Haystack School of Crafts

Program: Craft school

Site: Deer Isle, ME, USA

Haystack school is located 30 miles from the main continent, in upper northeastern Maine. The school stretch downslope from the top of the hill overlooking the Ocean. The school marks its promenade through a long stairway connecting 5 levels of different zones, either workshops or dorms. The biggest public gathering space is on the second highest zone, enclosed by two workshop buildings. All the building use local wood as major material and minimized the interior decoration. Each building has a shed roof profile, oriented due south to allow for both views from the south and quiet daylight through northern clerestory.

This craft school is a good example of how sites respond its unique landscape and landform. The building reflects local construction and materials creating a natural textile experience of the school, as its mission. The site design also makes use of the topography and shaded woods to separates the public zones from private dorms. To define a place, which is different from the rest of the wood, the architect designed a shaded threshold as the gate entering the school, separating the natural and designed landscape.

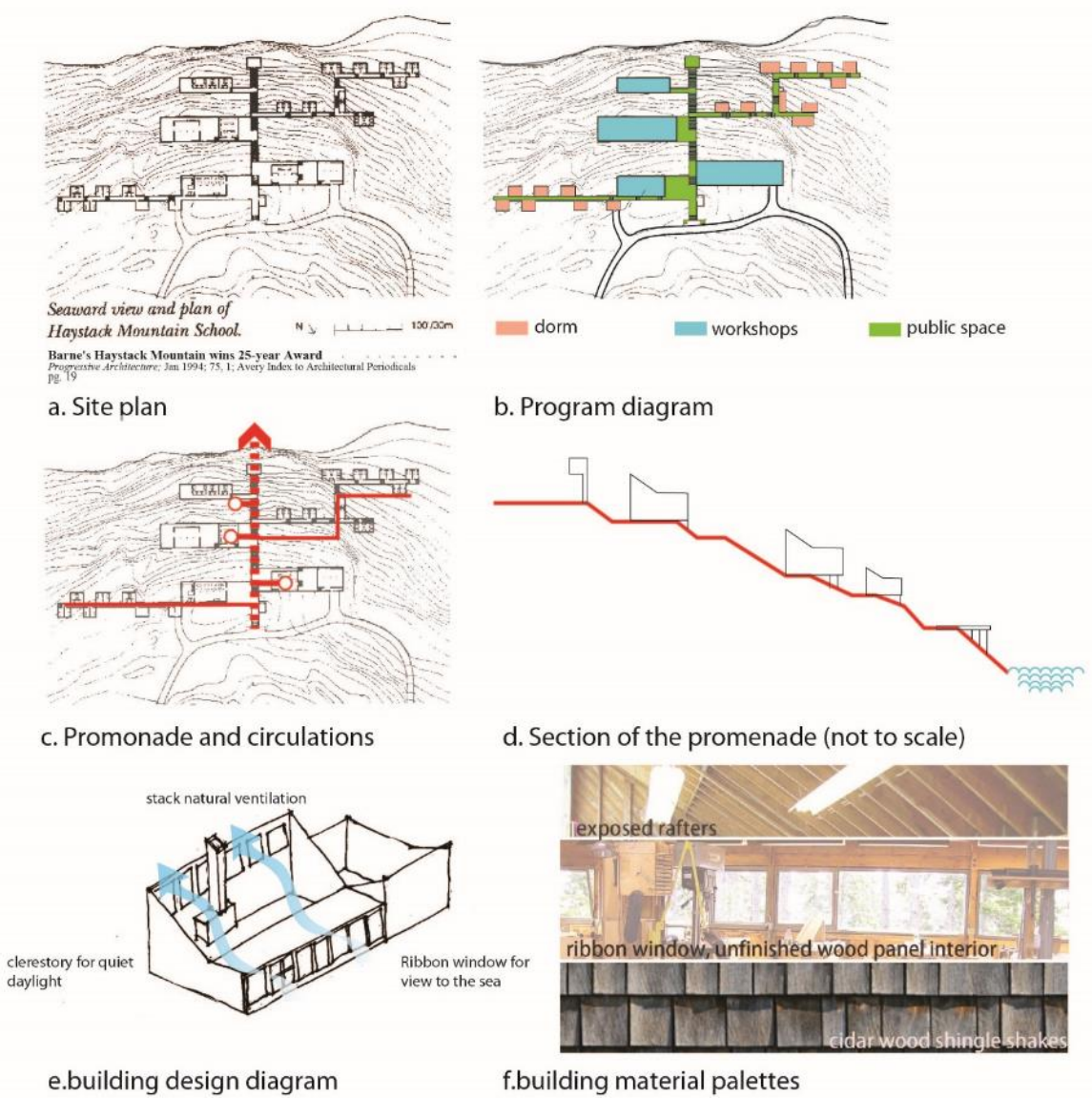

Figure 33. Haystack Mountain School of Crafts analysis (source: diagram a. is an original copy from Progressive Architecture, Jan 1994, 19. Other diagrams above come from the author)

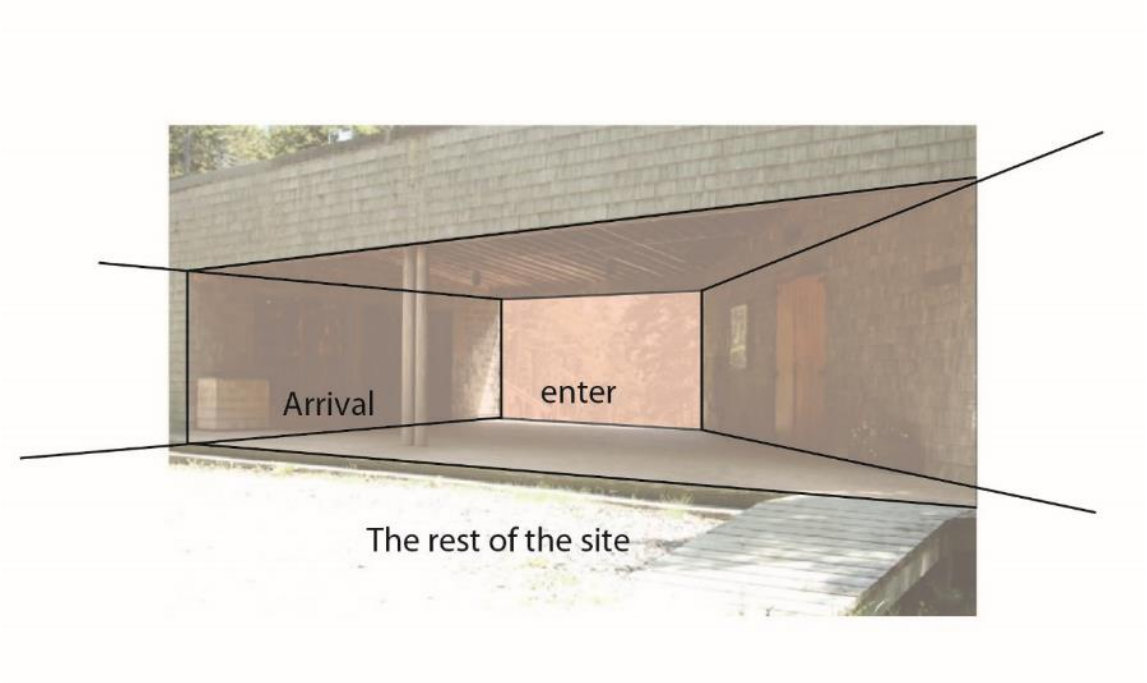

Figure 34. Haystack's entrance analysis

Glen Echo Park

Program: amusement park, artist's enclave

Site: Washington,D.C, USA

Glen Echo Park was once an amusement park, as the destination of first capital cable car routes. The park was initially a place for Chautauqua retreat. After the close of the amusement park, it became part of the U.S national park service. Currently Glen Echo park offers art and culture courses through the Montgomery County park system, providing spaces and facilities for cultural and recreational activities.[20]

One of the take away is how Glen Echo Park maintains its cultural and recreational purpose through using the platform of the national park network. It runs as a normal park-keeping visitors and at the same time provide educational and cultural

[20] Glen Echo Park History "Fun is where you find it" https://www.nps.gov/glec/index.htm

opportunities for the neighborhoods. Unlike other art center, Glen Echo scatters most of the studios in the park, allowing people to stop by each studio yurts as they walking around in the park.

Unlike other craft school being responsive to the local tradition, Glen Echo adopted several yurts and transform them into art classrooms. The figure shows how a pottery studio embed firing kiln in the structure of a yurt. The yurt building typology comes from Mongolia, a nomadic country. It is a possibility to introduce yurt in the building design because of the Mongolian influence in Dakou area.

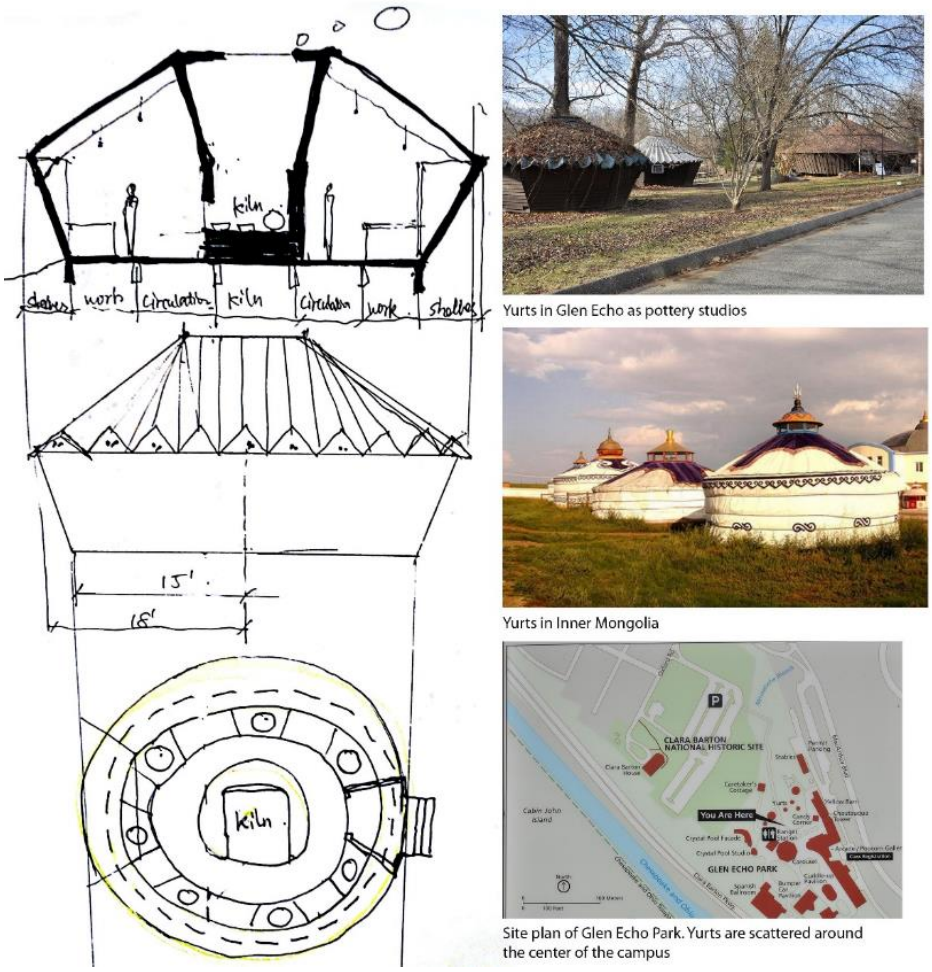

Figure 35. Glen Echo Pottery Studio in yurt and comparison to Inner Mongolia vernacular yurts

Macdowell colony

Program: Artists enclave, inspiration hub

Site: Peterborough, NH, USA

Macdowell Colony was originally private house of American composer Edward MacDowell and Marian MacDowell, his wife. Edward found himself being productive and full of inspiration in the countryside of Peterborough, New Hampshire. Later he invited his artists who share the same creative experience in the colony. It is the first American artist colony in the U.S. [21]

MacDowell colony provides unique production environments for all kinds of artists, such as painters, musicians, writers as well as architects. 32 studios scattered in the states all have different look to allow artist to pick the right textile experience for their creative work. To further immerse in the location, lunch for everyone is prepared by local villagers and delivered to their studio. Dinner is offered in common dining area to encourage artists to share, talk and social.

Take away: MacDowell Colony provides a great example of using local materials to maximize the textile experience of each studio. Common materials used widely in the campus are shingles, rough large pebble stone, and wood sidings. Also the engagement between artists and locals through food delivery service is a very unique format. It preserves the artists' privacy and production mode, yet interactive and full of charm.

[21] MacDowll Freedom to Create, "History of MacDowell Colony" http://www.macdowellcolony.org/about-FAQ.html

Figure 36. MacDowell Colony Studio building texture collage

Chapter 5. Schematic Design

Design strategies

The schematic design is to test the integration of site design and tectonic aspects of proposed buildings. The proposed project program has both public and private spaces. The public section is to encourage tourists or public with no prior living experience in rural area to interact, learn and gain a different perspective of vernacular living tradition. At the same time, the public space could potentially become a gathering space and public amenity for the villagers to use and adapt in the future. The private section is to create spaces to encourage practice craft making and continue some craft-making tradition from the region and pass along to scholars, craftsmen and the young generation.

According to the project program purpose and social interaction, there are two fundamental different approach, an architectural approach and an urban design approach. The architecture approach focuses on the transition among different spaces to fulfill public and private needs. The urban design strategy on the other hand has to deal with the spatial relationship between proposed building and its compatibility with the existing pattern and environment.

Regardless of the strategies, the proposed program will be a public building in relation to the ordinary dwellings of villagers. The placing of a public building in Chinese traditional village vary depending on the layout of the village. A dispersed village along river levee or against the mountain tend to build their public building on either the interaction of paths or a topographical top.[22]

[22] Knapp, Ronald G. Chinese landscapes: The village as place. Honolulu: University of Hawaii Press, 1992.

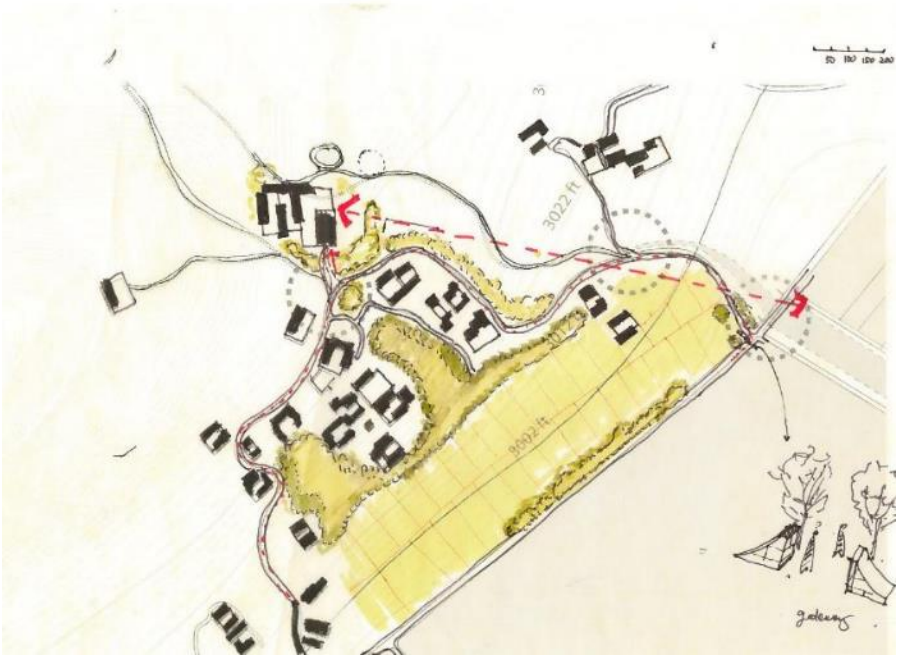

Figure 37. "Acropolis" scheme

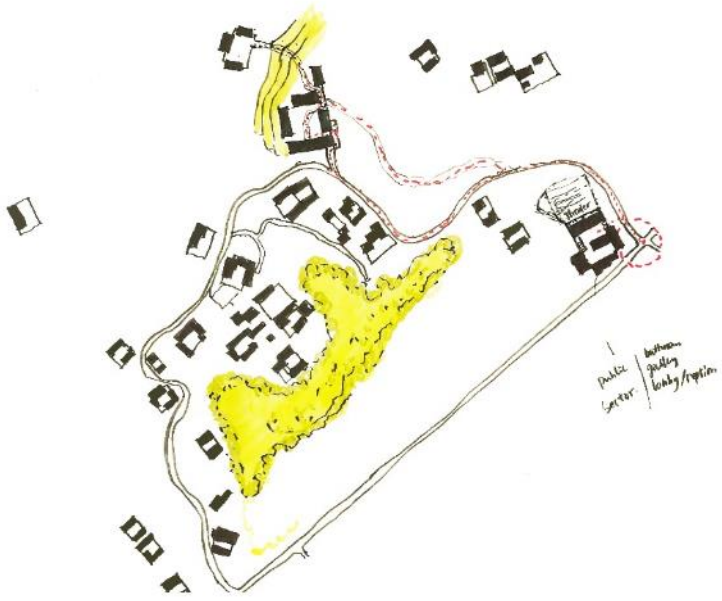

Figure 38. Public Private two building scheme

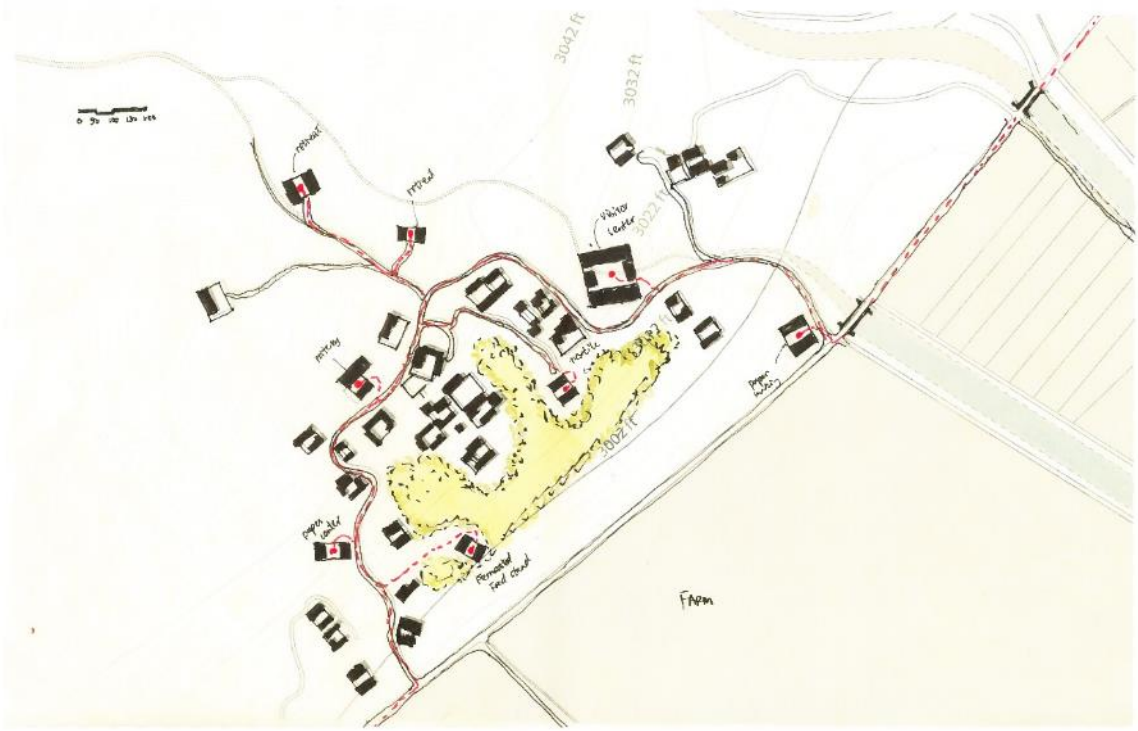

Figure 39. Sparse scheme

SWOT Analysis

To find the optimized scheme to achieve the goal of integrating the people and the village. Figure 40 below shows the comparison study based on SWOT strategies.

The first scheme “Acropolis/hilltop” scheme places the building on the higher elevation, geographically dominate and separate from the rest of the village. This design will have the opportunity to utilize the highpoint location creating a visual attraction, yet losing the goal of interacting with the village.

Second scheme “School-tourism” scheme reduces the construction difficulty and create a two-point destination. The new construction will have a distinct architectural language and massing compared to the rest of the context of the village. Yet it will create a smaller impact than the first one and minimal interrupt the local people’s life.

The third scheme “Sparse “scheme aims to mix the proposed studio and program buildings with the existing village fabric. Each of the building is at a certain location where potential public space can be generated in the future for people to gather and share information. The challenge is yet to find and design a traffic path that can connect the dots and make the whole program a unity whole. Another challenge for this scheme is to deal with the resource management shared by the village and the studio and craft facility.

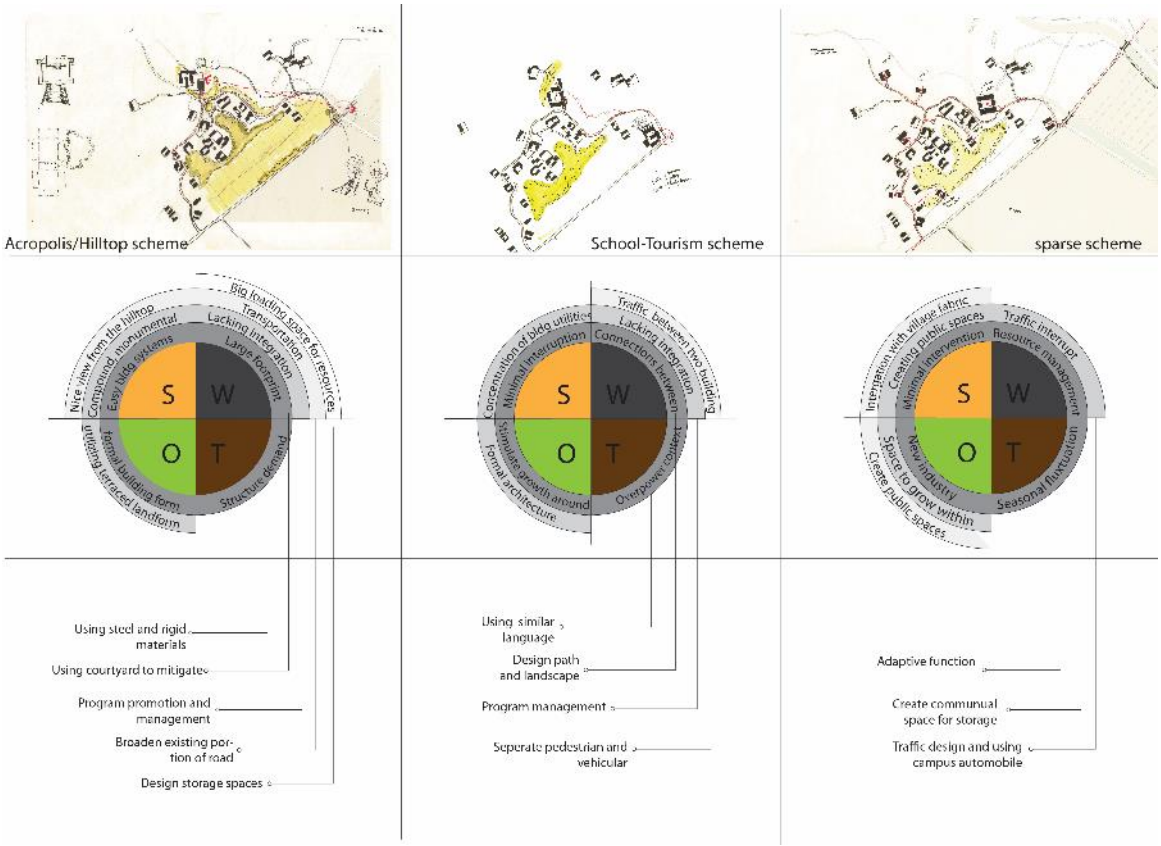

Figure 40. SWOT analysis of three schemes

All three scheme shows a great amount of opportunities for the program as well as villages. Referring back to the project objective of creating the interactive learning environment, the sparse scheme mixing the new and old buildings is helpful to merge the proposed program into the vernacular living life style of the village.

During a conversation with Prof. Hurtt, thesis chair of this project, he addresses an interesting topic and observation about the degree of open attitude towards outside culture and visitors. As he mentioned, a lot of culture is sensitive to influence and outside people to tour the space and observe the daily life of villagers. For some culture, it is equivalent to a zoo experience, where animal as objects being watched and potentially becoming entertainment matters. Referring back to the social and cultural background of the site, people settling at the area have had experience of merging, adapting and evolving the frontier culture. Because of the open attitude and the welcoming character of local people, it will be positive feedback through the interaction between the outside people and villagers.

To address the challenge of connecting the sparsely arranged new building, it is necessary to study the organic organization of the village dwellings as well. This is the key to further test the feasibility of the sparse scheme. Figure41 and 42 show how existing footpath created by local people's daily walk organizes the sparse scheme. Other than utilizing the existing footpath, the program can also introduce a campus car system for accessibility purpose.

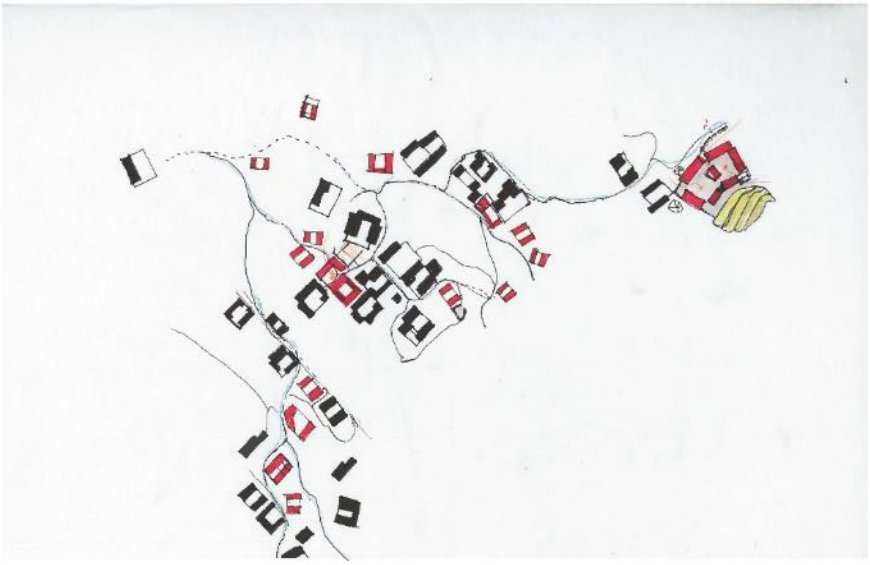

Figure 41. Proposed sparse layout with red indicating future proposed buildings

Figure 42. Proposed sparse layout blend into context

Building mass

Courtyard is a very versatile yet unique building typology. As described on Chapter 3 about vernacular architecture, this building typology is usually a bundle of three or four independent simple bar houses organized to create an open enclosure communal space called courtyard. Depending on the size and the function, the dimension

of each house range from 3 bay to 5 bay up to 7 or 9 bay in rare cases. Figure 43 shows a common scenario that one approaches a courtyard space

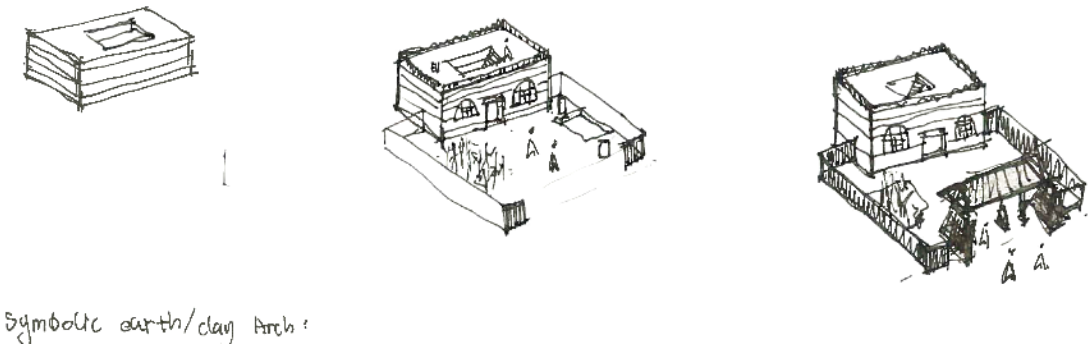

Figure 43. Courtyard scenario

Construction and tectonic

Chinese vernacular dwellings is rather diverse based on the owner's status, the availability of local materials and the tradition of certain building construction techniques. In northern China, the most common construction would be *tailiang* Framing Structure[23]

Besides framing system, some dwellings also uses solid wall system or shear wall system to adapt cold climate.[24] Common materials used in solid wall system are tamped wall or *hangtu*[25], sundried brick and fired brick. In Dakou region, these materials are all quite common except for *tailiang* framing structure. It is due to the environment that has

[23] Knapp, *Chinese Dwelling*, 79.
[24] Knapp, *Chinese Dwelling*, 99.
[25] Knapp, *Chinese Dwelling*, 101.

no big trees as building materials. Some places will simplify the tailiang structure to beam and flat roof to reduce the amount of wood they need to consume. Figure 44 and 45 shows the common wall and door details based on different wall construction methods.

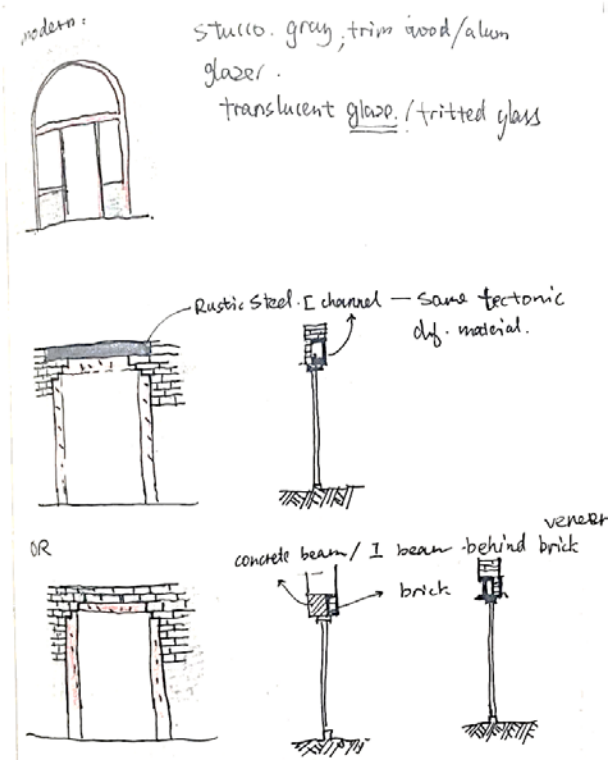

Figure 44. Traditional and contemporary door frame details

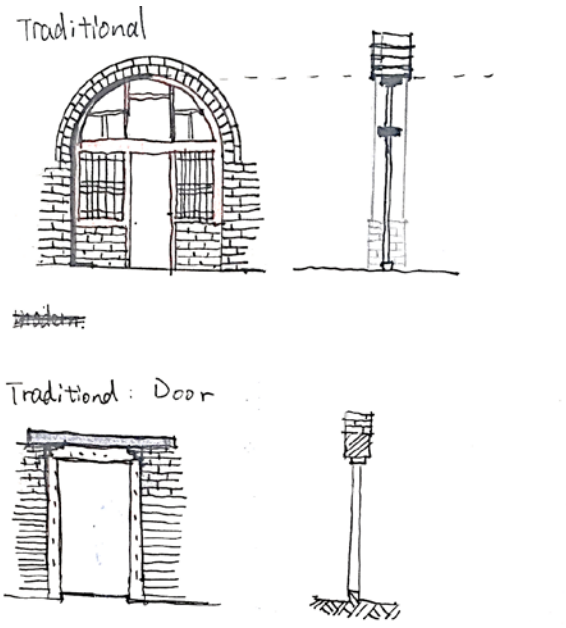

Figure 45. Traditional Door and window frames

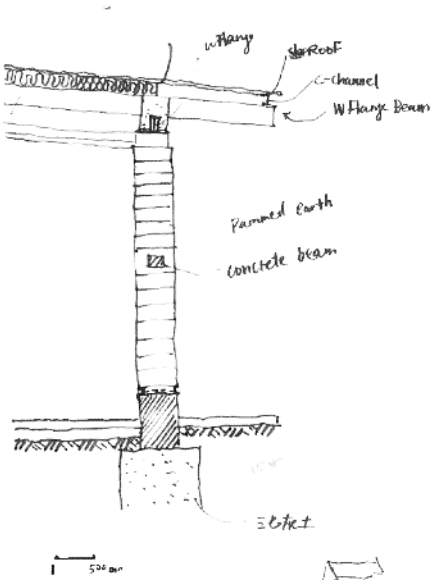

Figure 46. an adaptive masonry wall using tamped earth and hidden steel structure

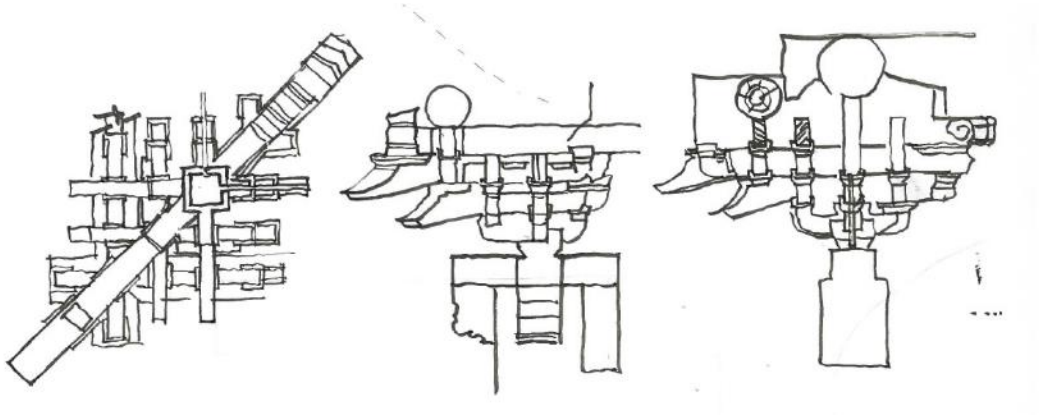

Figure 47. *Dougong* structure, traditional wood balancing system-connecting wall and roof

Dougong is a unique architecture structure and design elements used to connect roof and wall or framing structure. *Dougong* uses a series of balancing technique to transfer the roof load to the ground, to minimize seismic load during earthquake. [26] However, this building component rarely exists in vernacular dwellings in Shanxi region and it relates to typology associate with higher social status such as temple buildings and imperial buildings. As figure 48 shows, most of vernacular architecture uses the first five type of roofs where *dougong* is seldom used. However, the bottom three roofs commonly use d*ougong* to support the massive roof structure.

[26] Zhu, Jinan. "Ying zao fa yuan" quan shi. Beijing: Zhong guo jian zhu gong ye chu ban she, 2012.

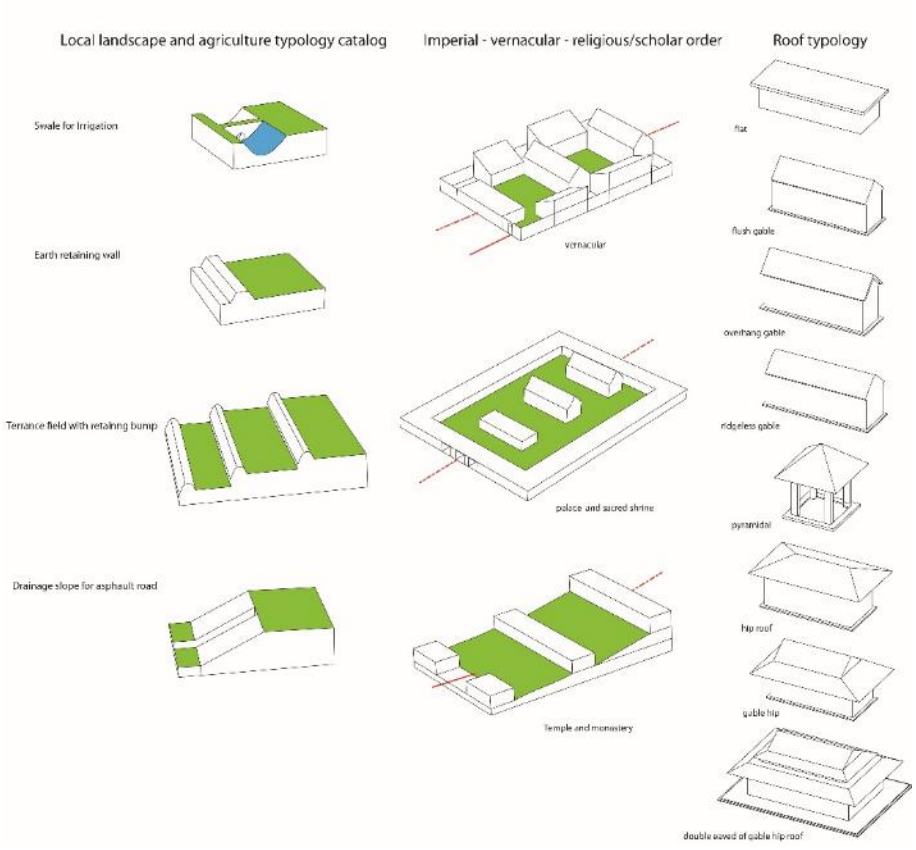

Figure 48. Typology catalog. Local landscape, varieties of traditional building orders and roof types

Design options

The design problem largely focuses on the degree of vernacular and high classical. Traditional Chinese architecture is a very broad definition that involves mainly three class and its corresponding building format: ordinary people (low status dwelling), scholar and aristocrats (landscape, high profile dwelling courtyard) and finally imperial family (temple and palace). The architecture complexity and the degree of crafts upgrade as the class goes up.

Further, during the design process, the program is divided to several different buildings to echo the sparse scheme. There are mainly four group of buildings: dwelling for artists, village center, visitor center and studios. Because of the versatility of

courtyard and its transformation, the design focuses on village and visitor center due to its complexity.

Village Center

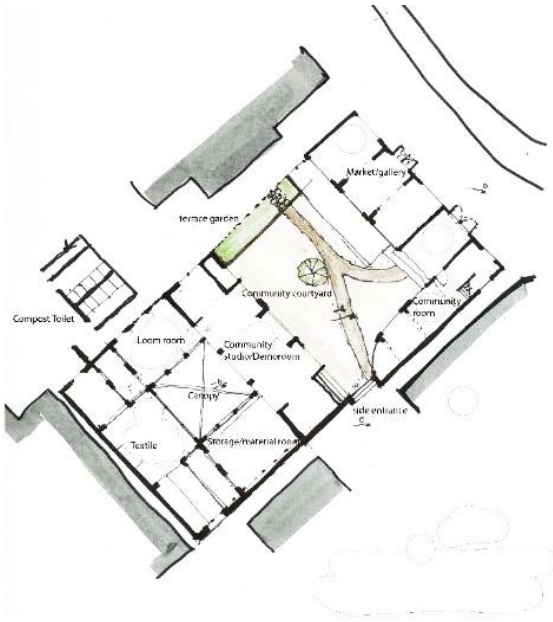

Figure 50. Scheme 1. Off center approach

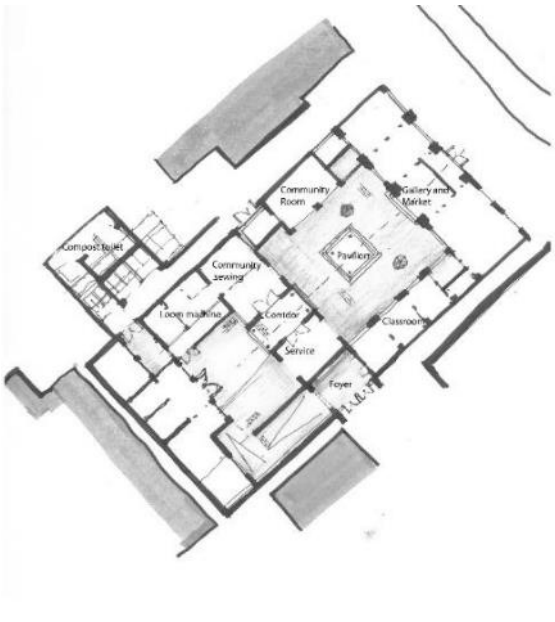

Figure 49. Scheme 2. Center approach

Figure 51. Scheme selection and front elevation

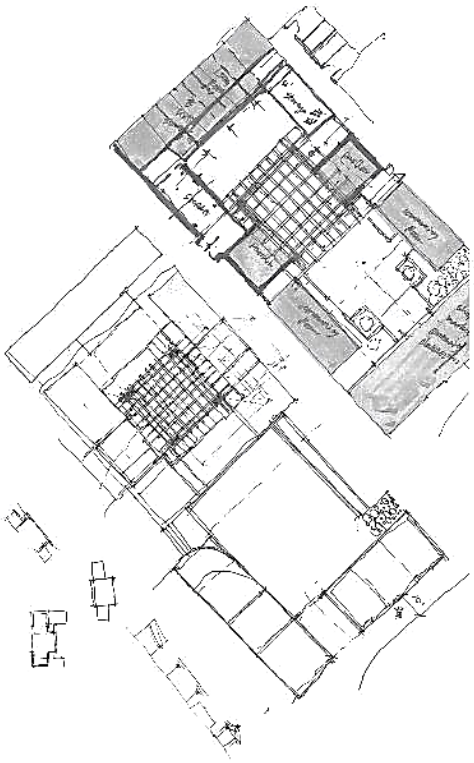

Figure 52. Final schematic design of hybrid of scheme 1 and 2

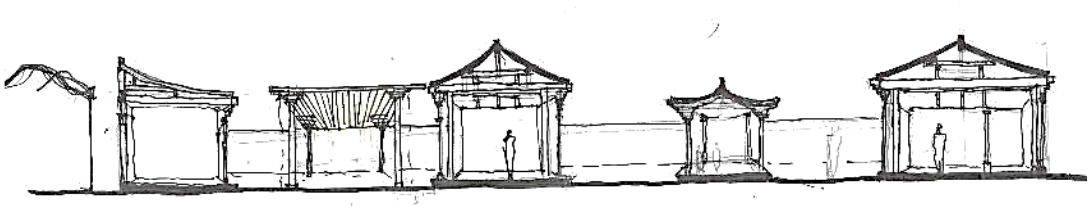

Figure 53. Village center section

Visitor Center

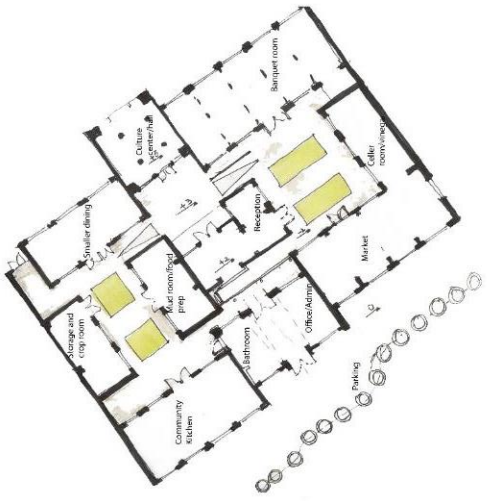

Figure 55. Scheme1. Orthogonal

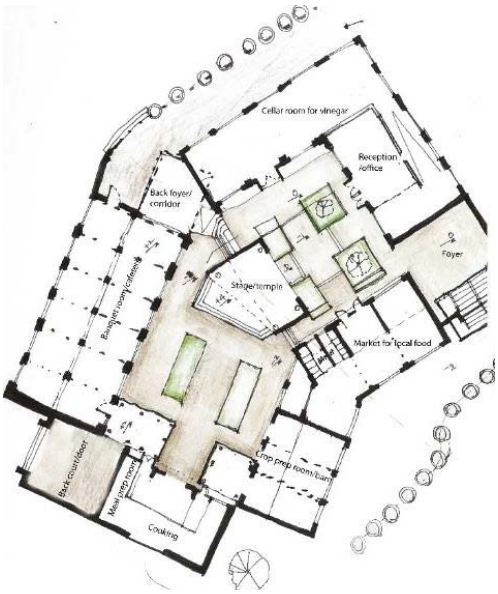

Figure 54. Scheme 2, Angled

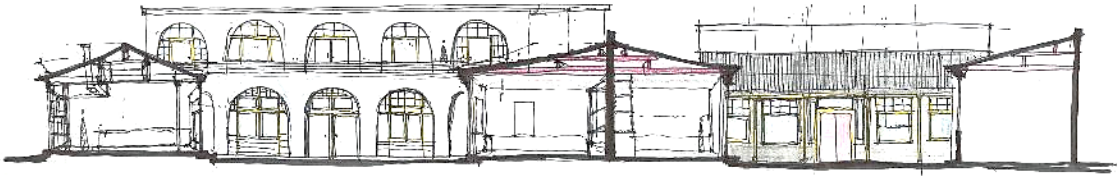

Figure 56. Schematic visitor center cross section

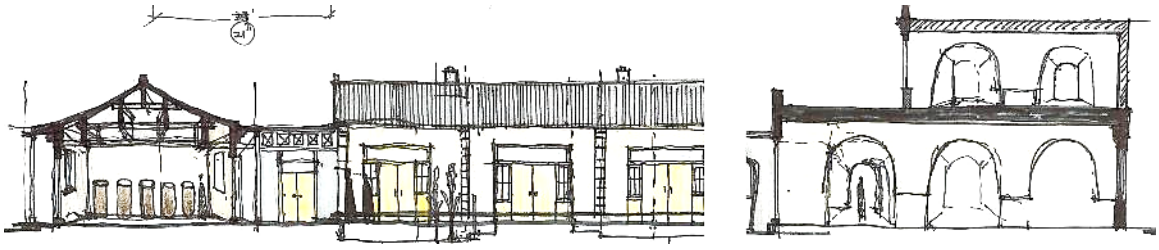

Figure 57. Visitor center courtyard cross section

Studios:

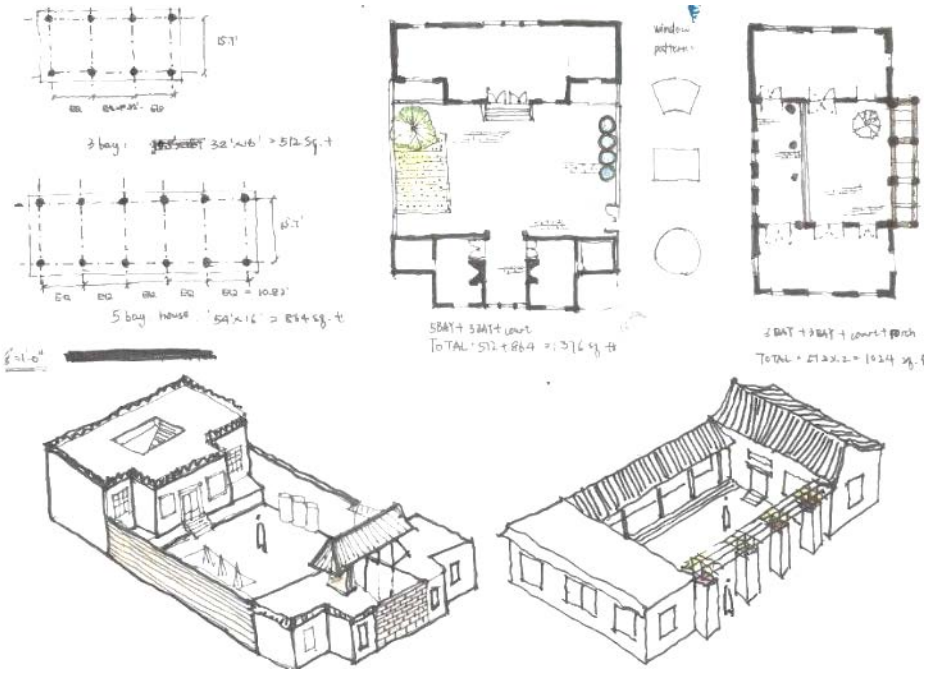

Figure 58. Dimension of typical courtyard houses and its spatial quality

Chapter 6. Proposed Design

Site

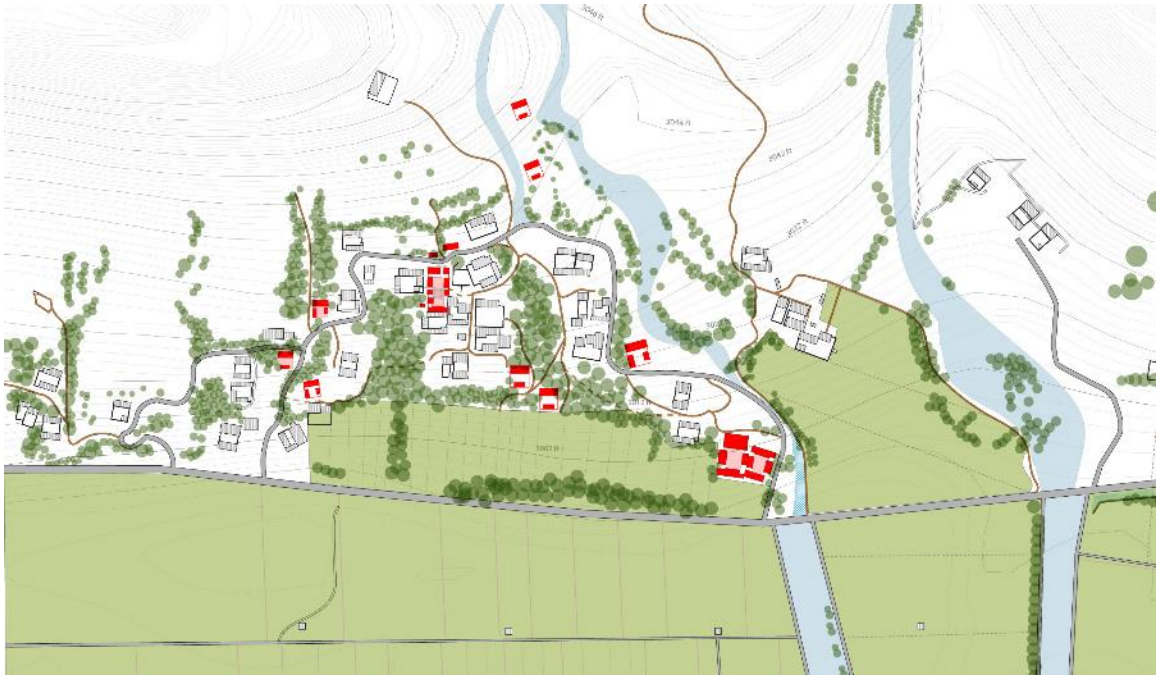

Figure 59. Proposed Site Plan

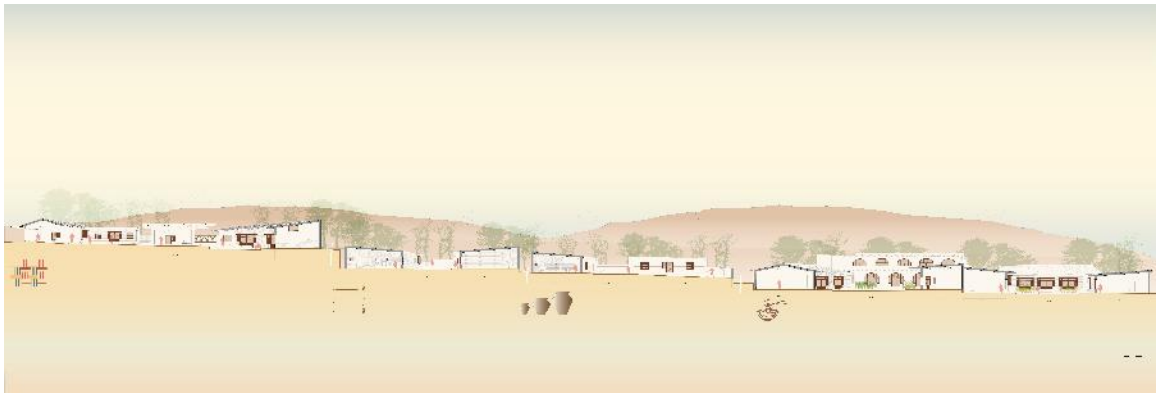

Figure 60. Site Section

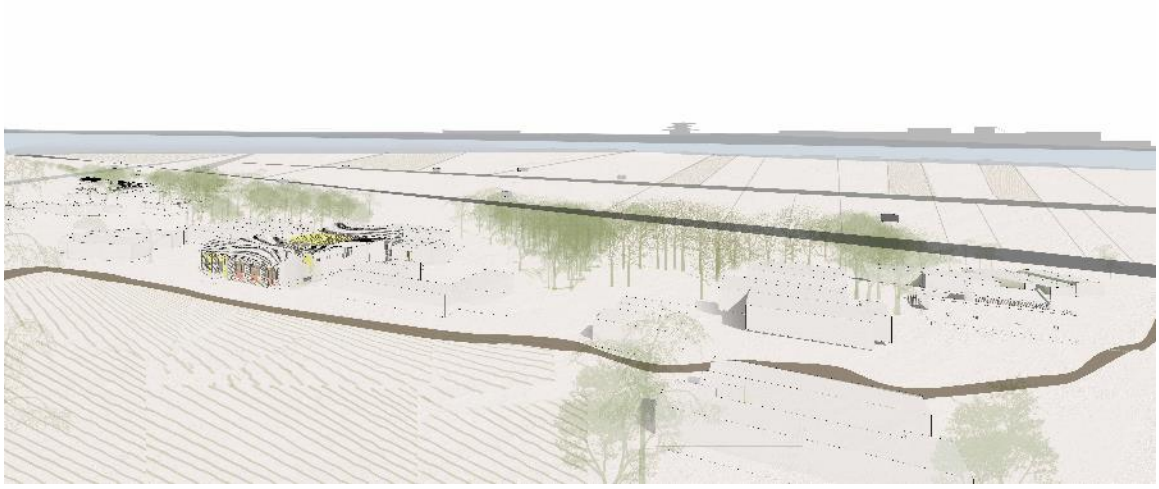

Figure 61. Aerial Perspective from the hilltop

The final proposed site design aims to blend the new program into the overall Dakou village layout. As people approaching the village, they experience the village at the same time the new proposed according to its elevation. The overall layout of the village also follows *fengshui* ideology as the existing villages was built.

Visitor center is located at the southeast corner of the villager, at the intersection of primary road and the drainage dike for the farmland. Mobile vehicles will utilize the existing road in the village. Visitors will utilize the footpath of the village to get around. People will experience different programs at different elevations. At 12 feet above river bank is the visitor center. Between 23-30 feet where domestic activities happening, locates the paper and pottery studio. Finally, at 48 feet above river bank is the village center, overlooking the village and serving as a new primary public space for the locals.

Buildings

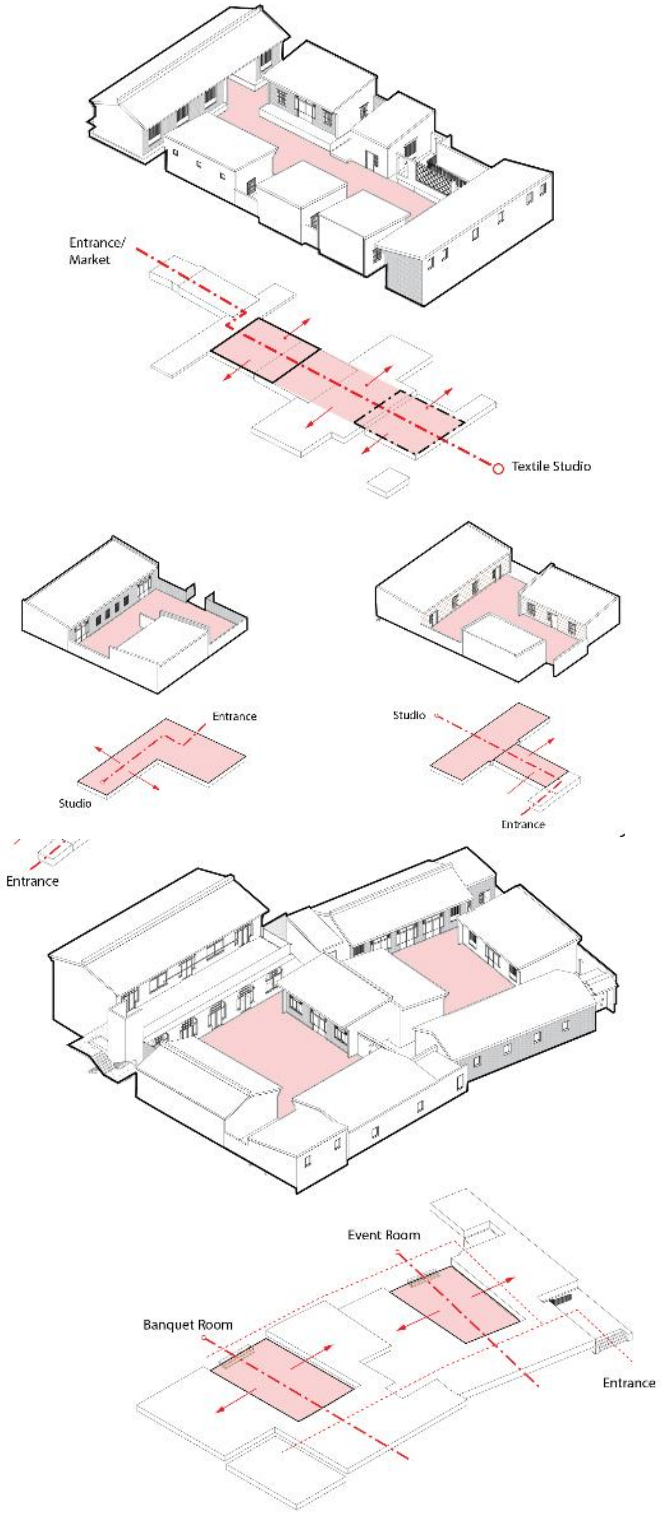

Figure 62. Building form diagram - courtyard form and its adaptive forms

The building design follows adaptation of a simple courtyard housing typology. Visitor center is designed to have horizontal aggregating form to present a larger building profile as the first destination of the craft center in Dakou. Studios space is a simple one courtyard form, with the studio as primary structure and storage or gallery spaces as secondary. Finally, the village center is designed to be vertically aggregate because of the site condition.

Visitor Center

Figure 63. Visitor Center Floor Plan

The visitor center is a double courtyard form aggregating horizontally. The first arrival courtyard serves as an arrival space featuring event room, administration and small gallery. Entering to the second courtyard is the local cuisine and banquet hall, featuring the cooking studio and a vinegar-making warehouse. The courtyard connected through ramps and stairs to create a corner entering sequence.

Studios (Pottery and Paper Craft)

Figure 64 Studio Plan

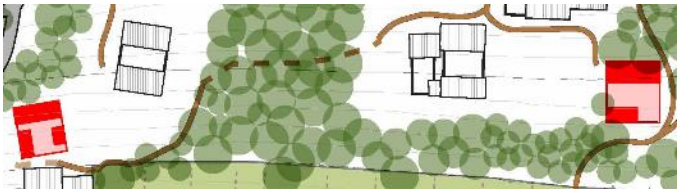

Figure 65 Studio Site Plan

Both studio courtyards have its entrance off center from the axis of main structure. It follows the traditional layout of a courtyard house but featuring a rather modern adaptation of wall structure and window details.

Village Center

Figure 66. Village Center Floor Plan

Village center is a compound of a communal courtyard shared by the local people and a textile courtyard connected by a pergola structure. The pergola structure adopts the *dougong* detail and stage vernacular building form to highlight a certain kind of architectural elements that remind people the essence of traditional architecture

Vignettes

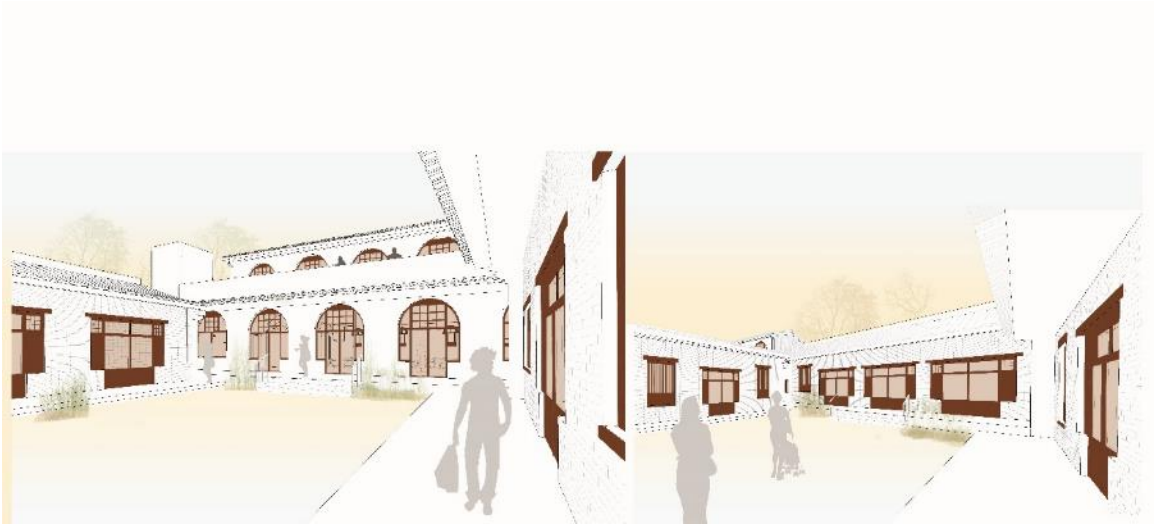

Figure 67. Visitor Center Vignettes

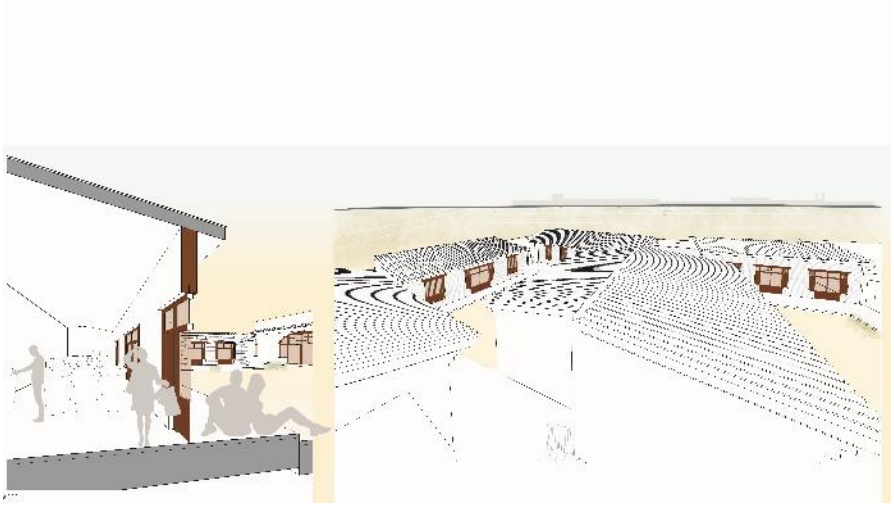

Figure 68. Visitor center vignettes continue

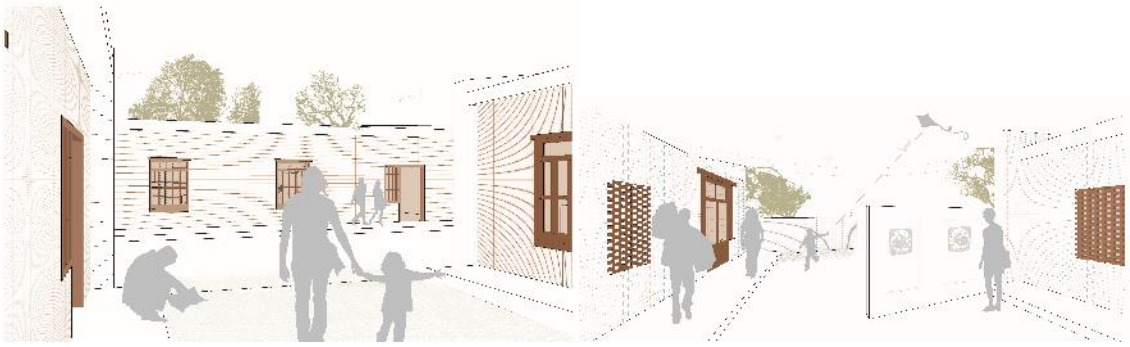

Figure 69. Studio vignettes

Figure 70. Village center and textile studio vignettes

Tectonics

Visitor Center Wall section

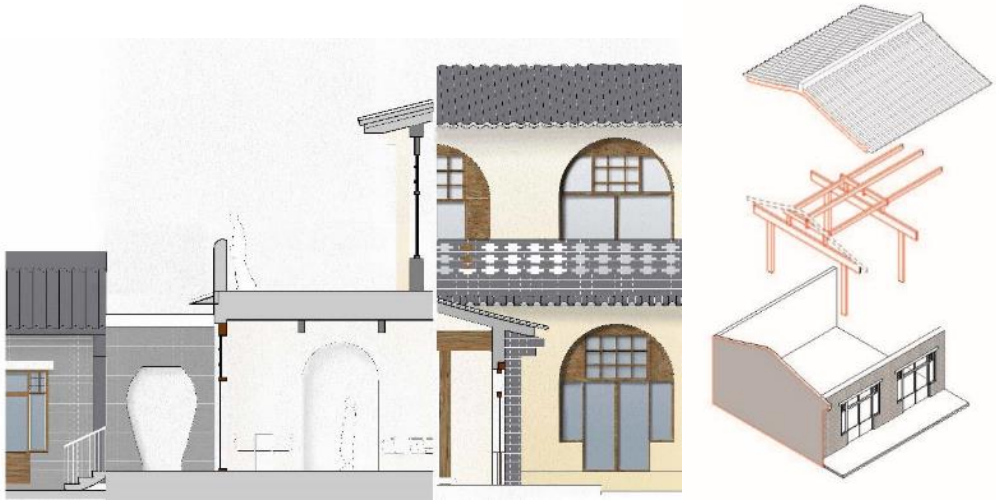

Figure 71. Visitor center building section and exploded axonometric

Studio Wall Section

Figure 72. Paper studio and Pottery studio wall section-elevation

Village center wall section and pergola

Figure 73. Village Center wall section elevation featuring wood pergola

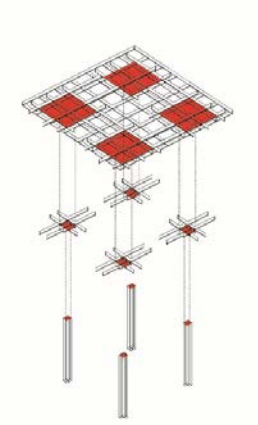

Figure 74. Pergola Structure axonometric diagram

Chapter 7. Conclusion

This thesis synthesizes craft, vernacular culture and architecture into a model where multiple groups of people can engage themselves in northern Chinese tradition and craft-making in Dakou. Through making a craft at the facility to learn about the tradition and further understand the celebration ritual, people can have a different understanding of the tradition. At the same time, this model also expresses the power of embracing tradition to rejuvenate a village that struggles with population loss and shift of industry. The project uses a series of architecture techniques both construction and design to present a multiple scales of vernacular life from craft making, building design and finally the village layout. The cross-scaled design approach is to present wide varieties of personal experience that telling the participants the beauty and possible future of traditional crafts and architecture.

The thesis also critics the current situation of tourism in terms of its limits of representing the traditional architecture and vernacular culture. On one hand, tourism is inevitably the new and more socio-ecologically conscious choice for any villages like Dakou due to the environmental constrain and industrialism impact. On the other hand, tourism bringing economic growth at the same time input a new cultural attitude, which could challenge people's perception about tradition. This is a critical situation, but also an opportunity for vernacular culture.

Architecturally, the thesis project approaches to the critical condition through careful study, analysis and design of both regional and local culture and vernacular architecture language. This process helps to optimize the authenticity experience and also bring up an interesting dialogue between modernism and tradition. Some elements of the

design exactly replicate traditional architecture, such as wood window frame, roof tile and the detail of a vault window and doorframe of the banquet hall. Some architectural details are purposely designed to remind participants a certain kind of architectural language in high-classical architecture, such as the pergola mimicking the *dougong* structure. Finally, there are certain places and details designed to pose a hybrid architecture that opens to the participant to critic, appreciate, or improve. Ultimately, the framework of designing the facility using different design approaches is to provide multiple choices to the villagers to reconsider the beauty and meaning of tradition in Dakou. The extension of the project is how architecture language can continue the living tradition of villages. The answer is rather an open end as long as villagers find it encouraging and educational.

Bibliography

Boyd, Andrew. Chinese architecture and town planning: 1500B. C. - A.D. 1911. London: Alec Tiranti, 1962.

Cao,Yongnia 曹永年. *History of Inner Mongolia 内蒙古通史 (第三卷)* [M] Hohhot: University of Inner Mongolia 呼和浩特: 内蒙古大学出版社，2007.

Chen, Zhihua, and Qiuxiang Li. Cun luo. Beijing Shi: Sheng huo, du shu, xin zhi san lian shu dian, 2008.

中国长城遗迹调查报告集 [Collected reports on surveys of the Great Wall of China]. Beijing: Cultural Relics Publishing House. 1981.

Duan,Youwen 段友文. Zouxikou Yimin Yundong zhong de Menghan Minzu Mingsu Ronghe Yanjiu [The emerging of Mongolian and Han culture and folk tradition during the westward migration] 走西口移民运动中的蒙汉民族民俗融合研究 [M]. Beijing: The Commercial Press 北京: 商务印书馆, 2013:316.

Edwards, Brian. *Courtyard housing: past, present, and future.* Abingdon: Taylor & Francis, 2006.

Gaubatz, Piper Rae. *Beyond the Great Wall: urban form and transformation on the Chinese frontiers.* Stanford, CA: Stanford University Press, 1996.

Glen Echo Park History “Fun is where you find it” https://www.nps.gov/glec/index.htm

Golany, Gideon. *Chinese earth-sheltered dwellings: indigenous lessons for modern urban design.* Honolulu: University of Hawaii Press, 1992.

Hara, Ken'ya. *Designing design*. Baden, Switzerland: Lars Müller Publishers, 2008.

Hua, Chen Zhi. *Gu zhen qi kou*. Bei jing: Zhong guo jian zhu gong ye chu ban she, 2004.

Jiang, Wei and Li Qiang Qiang “Of feelings and Lives On the design of MaCha Village Center” *Architectural Journal*, 571-23 April, *2015.*

Johnson, Ian, “In China, ‘Once the Villages Are Gone, the Culture Is Gone’” *New York Times*, February 1st 2014

Knapp, Ronald G., and Kai-Yin Lo. *House, home, family: living and being Chinese.* Honolulu: University of Hawaii Press, 2005.

Knapp, Ronald G. *Chinese landscapes: the village as place*. Honolulu: University of Hawaii Press, 1992.

Kanapp, Ronald G., *China's Old Dwelling.* Honolulu: University of Hawaii Press, 1999

Knapp, Ronald G., and Kai-Yin Lo. House, home, family: living and being Chinese. Honolulu: University of Hawaii Press, 2005.

Li, Xizeng 李希曾主编．Historical evidences and research on Jin merchants in Shanxi region 晋商史料与研究［M］．*Taiyuan: Shanxi Renmin Press 太原: 山西人民出版 社，* 1996 ．

Liu, Qingping,刘青平, "Xi Kou Wen Hua Yu Qu Yu Jing Ji Fa Zhan" [Xikou Culture and Regional Economic development]西口文化与区域经济发展, *Journal of Shanxi University 35,* 92. 2012.

Liu, Jiansheng, Shitao 刘建生，石涛．Xikou Culture: a unique deviation and bequeath of Chinese traditional culture evolution 西口文化: 中国文化传统演进中的异化与传承［J］．*Shanxi University Press: Philosophy and Social Science 山西大学学报: 哲学社会科学版，* 2007(2) : 7－ 12．

Lo, Kai-Yin, Puay-peng Ho, and Yuxiang Li. Gu cheng jin xi: Zhongguo min jian sheng huo fang shi. Xianggang: Yong ming tang. , 1999

MacDowll Freedom to Create, " History of MacDowell Colony" http://www.macdowellcolony.org/about-FAQ.html

Mann, Susan, and Gilbert Rozman. "The Modernization of China." *The Journal of Asian Studies* 42 (1): 146. doi:10.2307/2055386. 1982.

Myerson, Jeremy, and Philip Ross, *The 21st century office: architecture and design for the new millennium.* New York: Rizzoli. 2003

Rabbat, Nasser O. *The courtyard house: from cultural reference to universal relevance. Farnham,* Surrey, England: Ashgate, 2010.

Reynolds, John. *Courtyards: aesthetic, social, and thermal delight.* New York, NY: John Wiley, 2002.

Tuan, Yi-fu. *China*. Chicago: Aldine Pub. Co., 1969.

Wang, Huanfang and Bao, Wuyu 王换芳，包乌云 "Zou Xi Kou Yi Min Yun Dong De Chengyin Ji Dui Meng Han Guan Xi de Yin Xiang "[The historical reason of Xikou migration and its impact to Han-Mongolian's bilateral relationship] 走西口移民运动的成因及对蒙汉关系的影响, Journal of Enshi Technical College [恩施职业技术学院学报]Vol. 27:41. 2015

Wang, Qijun. Tu shuo min ju. Beijing: Zhongguo jian zhu gong ye chu ban she, 2004.

Wang, Jinping, Qiang Xu, and Weicheng Han. *Shanxi Traditional Architecture. Chinese Vernacular Architecture Series.* Beijing: China Architecture Industry Publisher. 2013

Xue, Linping. Bei jing chuan tong cun luo. Beijing: Zhong guo jian zhu gong ye chu ban she, 2015.

Zhu, Jinan. *"Ying zao fa yuan " quan shi*. Beijing: Zhong guo jian zhu gong ye chu ban she, 2012.