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Innovation of the Residential Buildings and Community in the Emerging City Rongcheng

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**INNOVATION OF THE RESIDENTIAL BUILDINGS AND COMMUNITY IN THE
EMERGING CITY RONGCHENG**

A Thesis Presented

by

XING YU

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

MASTER OF ARCHITECTURE

May 2016
Department of Architecture

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A Thesis Presented

By

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TO MY HOMETOWN

ACKNOWLEDGEMENTS

I want to thank life. When I look back, I find no matter what I have experienced, all experiences become fortunes when I cherish my life and try to make every day count. I have to thank several people especially.

I want to thank my hometown, parents and my sister, who teach me honesty: Be honest to others, to this society and more important to myself. In addition, everything seems come from the warm home that my parents and my sister give me together with my hometown.

I want to thank my fiancé, who is always there to help me when I become more and more sensitive losing my life balance because of my sensitive explorations to my thesis topics.

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ABSTRACT

INNOVATION OF THE RESIDENTIAL BUILDINGS AND COMMUNITY IN THE EMERGING CITY RONGCHENG

MAY 2016

XING YU, B.A., NORTH CHINA ELECTRIC POWER UNIVERSITY

M.ARCH, UNIVERSITY OF MASSACHUSETTS AMHERST

Directed by: Professor Kathleen Lugosch

Nowadays in China, every province is implementing urbanization, which is a national policy goal. In this process, Copinism is very obvious. Almost everything is being done by Western World rules, from buildings to lifestyles; apparently, China needs to learn a lot from the western world. However, with the development of urbanization, the inadequacy of this approach becomes more and more evident, especially in old cities with rich culture heritages. The overly rapid development speed even sharpens the resulted contradictions when it brings chances. With decades of “copying”, it’s time for China, a country with such a different culture system from the West, to turn to substantive innovation, but renovation.

Rongcheng, which is located in the middle-east of China, is a thriving new city with traditional villages occupying the majority of the land. The location, climate, environment, folkways and labor market, etc. attract people to visit, find jobs or buy summer houses there. Many developers enter Rongcheng for the opportunities to make money by developing old villages. The current situation is very interesting. Some villages have been completely developed with low-rise and medium-rise (6 levels) residential ‘city’ buildings that have replaced the traditional local houses.

Some villages have refused to be developed by the developers by voting. No matter what happens, all people are holding hopes for a better future.

With a thriving development environment, I think, the residential buildings & community typology in Rongcheng have great potentials and opportunities for major innovation. Both village buildings and city buildings have elements that people yearn for. At the meantime, any innovation must consider the general political and economic system in China as a major underlying force. Meanwhile, by starting from the most basic requirements of the residents, including lifestyles and old customs and combining them selectively with mainstream-rules, I aim to create a new kind of building and community that is fitting to the local soil, meets the needs of local people, and directly addresses facets of China. This study about my hometown, Rongcheng, will become a start point for my studies of my homeland.

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CHAPTER 1

RONGCHENG

1.1 Introduction

As a county-level city of Weihai City, Rongcheng, my hometown, is the closest land to South Korea in China (Latitude: 37, Longitude: 123). It is located at the eastern extremity of Shandong Province with all directions but the west looking out to the Yellow sea (Figure 1).



Figure 1 Rongcheng Location

With its advantages in economy, transportation and climate, etc., Rongcheng is a thriving city with rich possibilities. In 2015, Rongcheng was reported to be the fifteenth in Top 100 Counties in China according to economic development situation and potential. (中国中小城市绿皮书2015) There are increasing numbers of South Korean enterprises coming to Rongcheng, offering substantial job opportunities. Thanks to the long coastline, fishery and seafood processing enterprises play major roles in the job market as well.

The public transportation system has become well-developed, especially in recent years. In Weihai, there is one airport, one normal train station and three harbors with routes to Japan, South Korea and Dalian City—a big city in China. (Figure2) In addition, in December of 2014, a high-speed (up to 186 miles per hour) train station built inside Rongcheng, opened, which makes people’s lives much more convenient. Compared to normal train’s 16 hours, it only takes 6 hours to Beijing. And it also reaches other big cities, such as Shanghai and Qingdao more quickly. Locally, taxi and bus services are popular in city area. For the remote villages, bus service is becoming better with more good-quality roads being built.

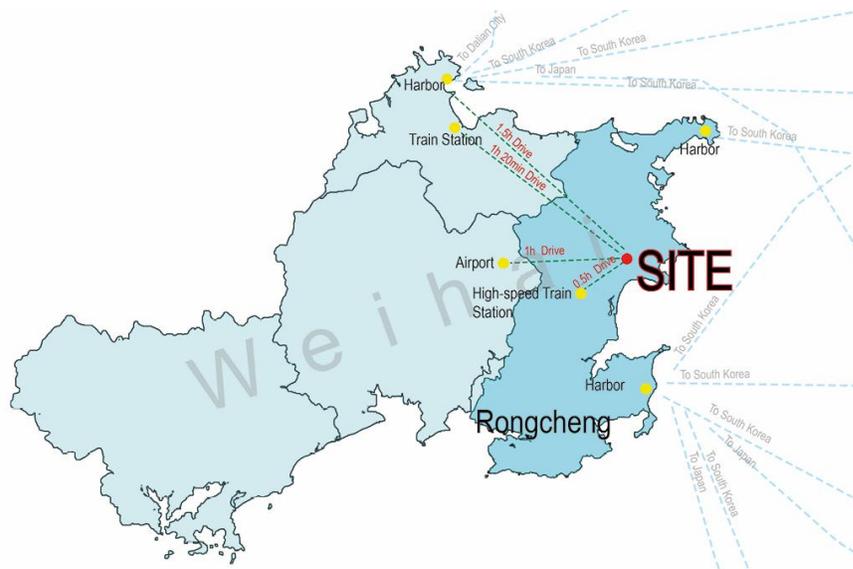


Figure 2 Transportation

There were more than 20 provinces blanketed in toxic haze in China’s eastern coast during the past few years. Unlike most cities in China, Rongcheng isn’t influenced by haze for the vast majority days during a year. Fresh air and great scenery attracts people to this city. The local climate is also clement and temperate. Swan Lake in Rongcheng is a famous wild swan habitat during winter. Using a photo (Figure 3) taken from the Swan Lake, Chinese photographer Yongkang Zhu won

Wildlife Photographer of the Year (WPY)—the Oscar of wildlife photographers—in the category “Animals in Their Environment” in 2008. Compared with the inland areas of the same latitude, it has colder spring, cooler summer and warmer autumn and winter. The four seasons are distinct with smaller temperature difference from day to night. Because of its location, the air Relative Humidity is a little bit high.

(Figure4)



Figure 3 Snow Swans by Yongkang Zhu (Source: Google Image)

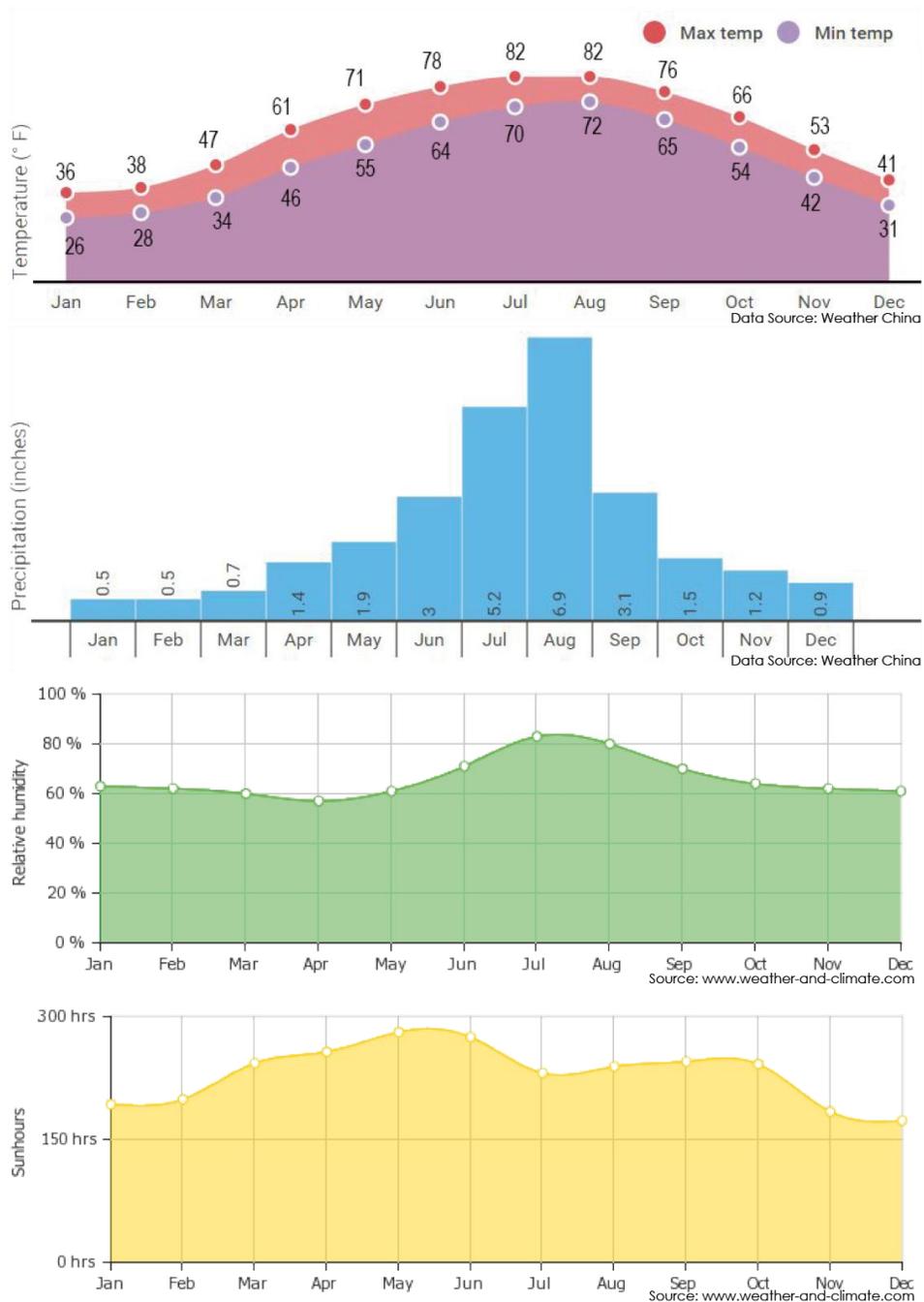


Figure 4 Climate data

Weihai weather station shows that: the prevailing wind direction in RC is easterly, with East (E) and East Southeast (ESE) in spring and summer, North (N) and North Northeast (NNE) in autumn, and Northeast (NE) and North Northeast (NNE) in winter.

Every location has its own specific folkways. As the hometown of Confucius and Sun Tzu, a famous ancient Chinese military strategist, Shandong province has its own specific folkway known by the whole country. The easternmost city, Rongcheng goes even further. As a small county-level city, Rongcheng has been the birth-place of more than 140 generals since the founder of People's Republic of China (1949). Local people are known to be bold and forthright, heroic, simple, plain, honest and hard-working.

All these elements attract people to tour, rent/buy houses, find a job or make investments in Weihai. Native people increasingly choose to stay in Weihai and growing numbers of outsiders, including tourists, migrants for jobs and developers, etc. enter this city. Except new buildings in the local area of my hometown, one obvious change I experienced when I went back China in the summer of 2015, was that people speak mandarin Chinese in the new local supermarket, but not dialect as before.

All these changes bring opportunities, but also problems and challenges.

The following diagram shows the City Impression of Rongcheng, which is also one driving force of the problems (1.3.1).

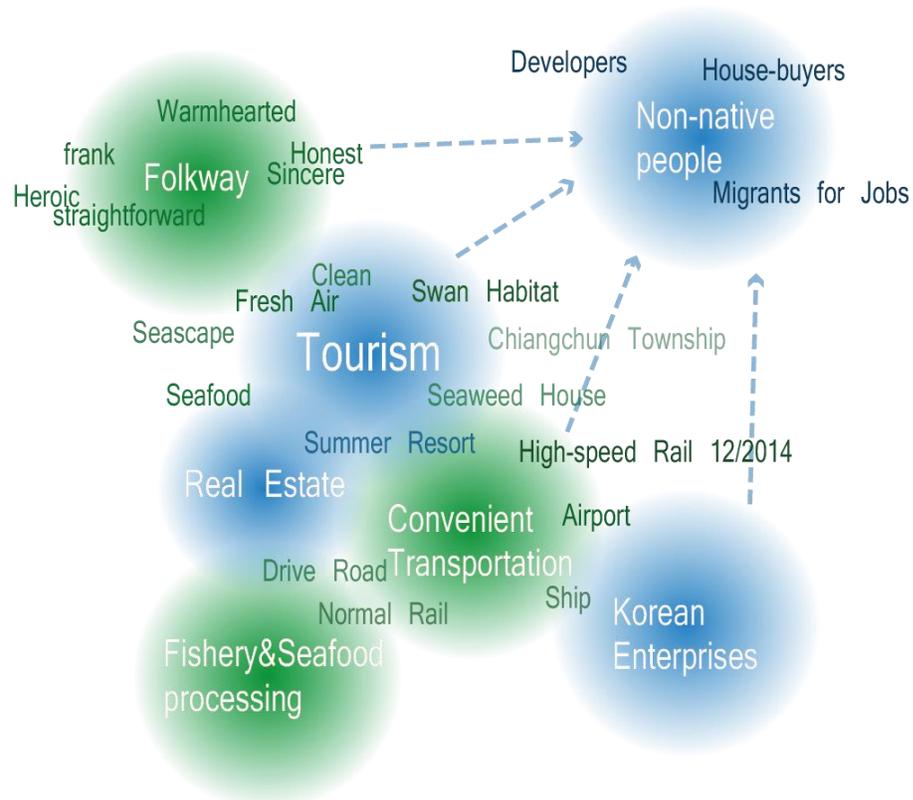


Figure 5 Rongcheng Impression / Keywords

1.2 Site Analysis

1.2.1 Village

The village is the main form of inhabitation in China. It is the smallest unit in China's governmental system. The size of a village can be very small - less than 100 families or very large - more than 1000. The number of villages in China is decreasing rapidly with the urbanization process.

There are more than 960 villages in Rongcheng. Almost all villages were built during the Ming Dynasty (1368-1644) and the Qing Dynasty (1636-1912). Although local villages are old, they are not dying like most villages in China. For many, there have been new couples building new houses inside the village in recent years. Many of the villagers are choosing to renovate their old houses by themselves as well. For

those villages having convenient transportation, developers are attracted to invest in new medium-rise residential buildings for villagers and outsiders. Some of them have been developed more or less into city-like villages. All these changes offer a great opportunity to think about what these old buildings and villages should become.

An important characteristic of local villages is that villagers know each other well. Some villages were named by local natural characteristics, such as mountain and river. Some were named by family names of the founders. With the passing of time, a village becomes a big “clan” with people sharing the same, or a few family names. Because of this, the buildings in the village show obvious uniformity and intimacy. This characteristic offers a great base for attracting and welcoming newcomers, which is unfortunately ignored by architects and planners.

The diagram below (Figure 6) shows the city area and the village area close to the site, which I will discuss in the next part. The city area shows as a large piece; the villages show as many separated clusters.



Figure 6 City & Villages

1.2.2 Site Selection

In order to study lifestyles in local traditional buildings and villages, I chose a typical village, Leng Jia Cun, as my focus; it shows the history of local traditional buildings clearly. Inside the village, I chose a blank site as well for my newly-designed buildings. The figure 7 shows the basic geography information around the village.

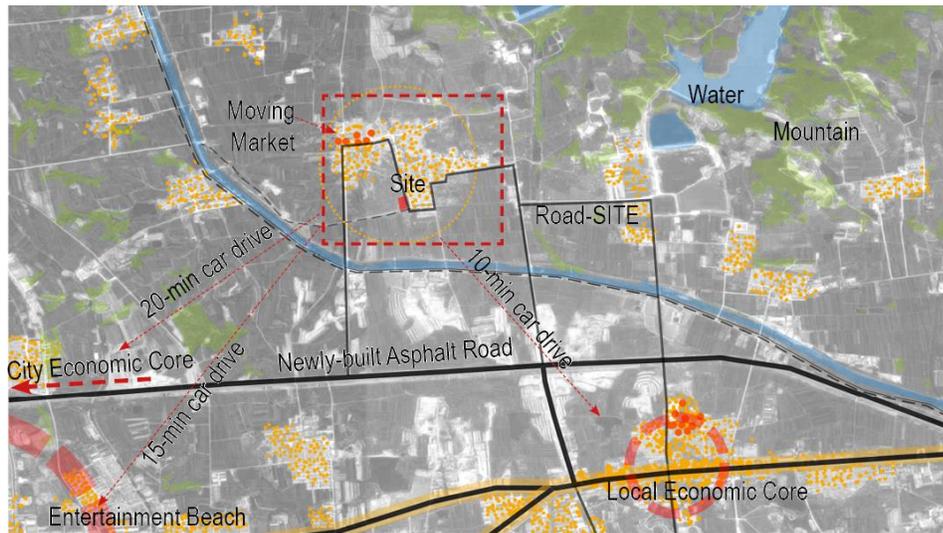


Figure 7 Site Analysis

The transportation system to the site has become convenient. Thanks to the newly-built asphalt road shown in the figure 7 and the improved quality of existing roads, it takes people only 10 minutes to drive car from the site to the local economic core, 15 minutes to entertainment, the public beach and 20 minutes to the large city economic core. When people use agriculture vehicles as transportation, as many local people choose to, the time can be doubled. Buses going to the Rongcheng city economic core pass by Leng Jia Cun four times every day.

As for shopping, other than the largest shopping district inside the RC city area, periodic markets (Figure 8) are very popular in villages and areas at the edge

of the city area. The closest one is held once every ten days, about 5-minute walking distance from the site. Villagers have their own fields and gardens, from where they get their food for most of the year. Excepting the old villagers, many young people who live in city after they get married would like to get fresh food from their parents' garden and fields if they have, than buy it from supermarket.



Figure 8 Periodic Market

The figure 9, 10 and 11 show detailed information about the site, including the topo, site accessibility, human activities, site drainage & green, house functions and house & people aging, etc.

The empty site I chose, a disused area resulting from the mechanization of farming, was formerly used primarily for the winnowing of chaff from the grain, drying the grain and restoring the combustible wheat straw (Figure 12). Almost every local village has such a place. With the development of modern technology in farming, the 'grain site' has been abandoned and left full of weeds.



Figure 9 Site Map (Source: Google Map)

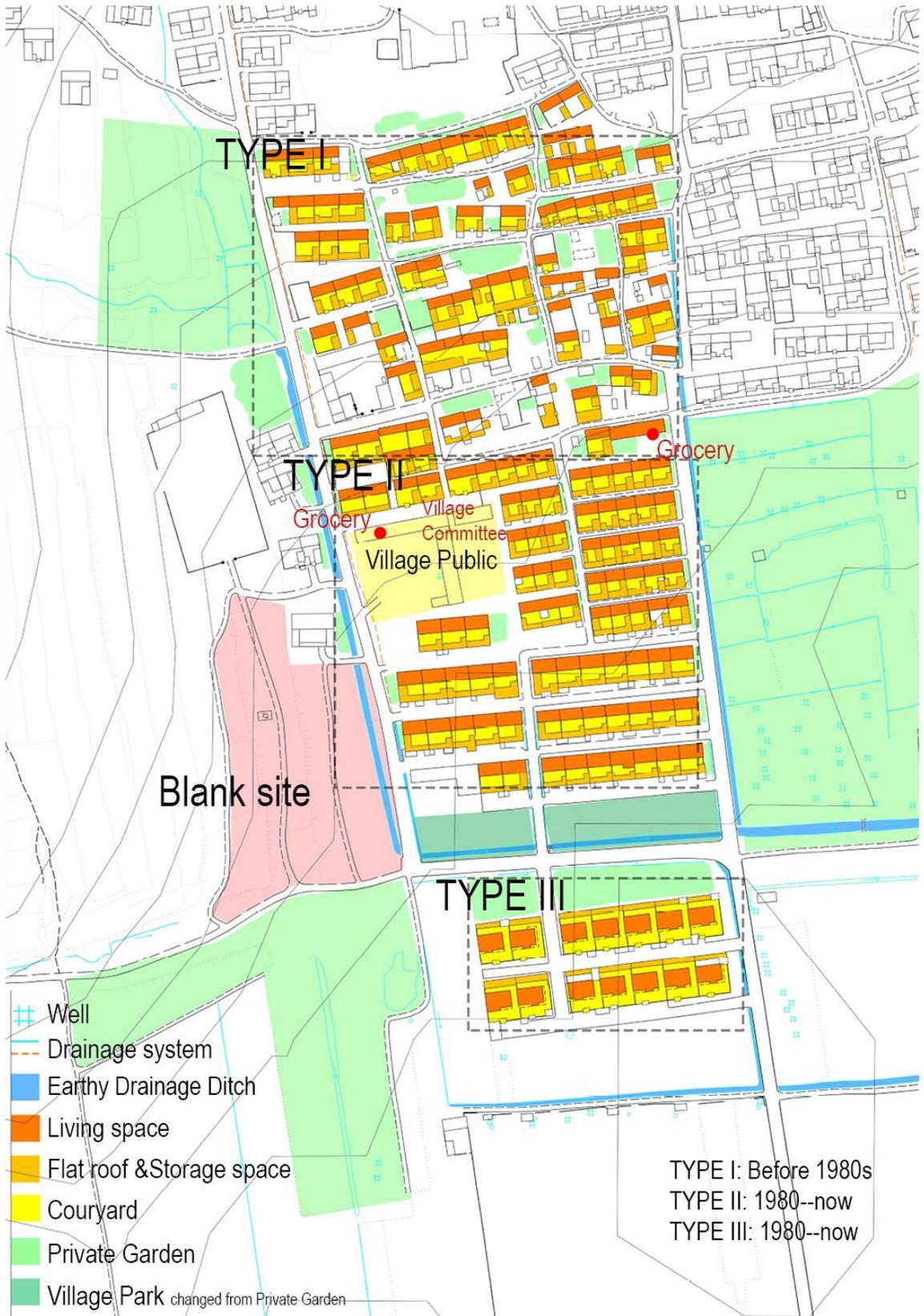


Figure 10 Detailed Site Analysis



Figure 11 Detailed Site Analysis



Figure 12 Stories of the Old Empty Site (Source: Google Image)

1.2.3 Local Traditional Building

1.2.3.1 Introduction

From 1980s B.C., when the first dynasty, Xia, in China was founded, to 1912 A.D., the time the Qing dynasty decline, China's Emperor Centralism political system existed for about four thousand years. To reinforce the centralization of authority, the rulers used various methods to strengthen the caste system. Building restriction for people in different ranks is one of them. For example, some roof types, such as fu-tian roof and hsieh-shan roof, were not allowed to be used by common people in the Qing dynasty. This grade system was reflected in the Chinese family as well, naturally having an influence on building type. One of the most typical building types in China, courtyard house (*Siheyuan*), shows this point. (Figure 13). It contains main rooms facing south and wing rooms facing west and east. Rongcheng City's residential building system is a kind of courtyard house as well. Except for the "modern" medium-rise and high-rise residential buildings built in recent decades, all local traditional housing types reflect aspects of this old traditional building type.

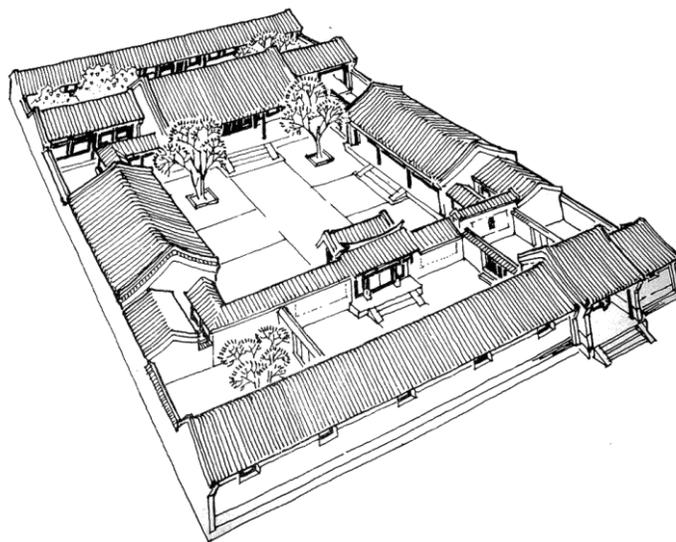


Figure 13 *Siheyuan* Typical Model (Source: Google Image)

Rongcheng's local traditional buildings belong to Jiaodong Peninsula's vernacular dwelling type in China. They have some common characteristics as follows:

- Courtyard House
- Seaweed Roof
- Use stone—a rich local material, especially for the foundation.
- Flat roof for drying grains.
- Neighbors share gable walls on two sides.
- Have “Kang”, a kind of traditional heating and cooking system, which is also a bed.

The vernacular houses, with the evolution of time, can be divided into three types (Figure 10), reflecting the change of people's needs and quality of life.

Type I (Figure 14, 15) (Before 1980s) contains the oldest local residential buildings, mostly built during a few decades after the founding of the People's Republic of China (1949).

At that time, with low levels of productivity, people struggled to get enough food for families. Although people had building experience in the past as a reference, the building type is not regular and neat, with different sizes of flat roof, for instance. Type I buildings largely inherit the traditional house's characters, such as the space organization and gatehouse (Figure 16).

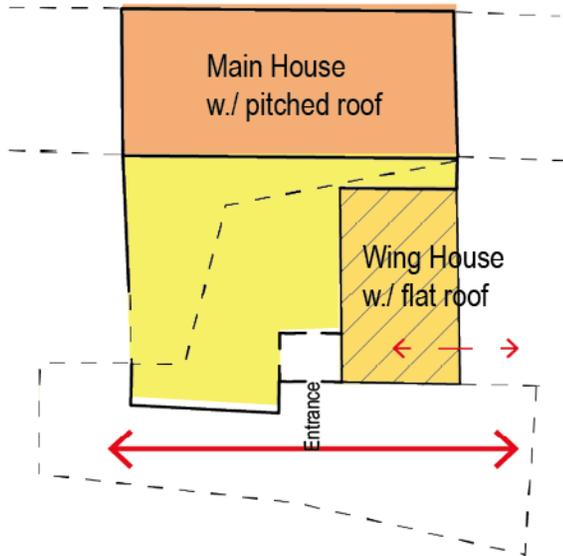


Figure 14 Type I Rough Layout



Figure 15 Type I Building Photos



Figure 16 Gate house in the traditional buildings

Type II (Figure 17, 18):

With the execution of Reform and Opening-up policy in 1978, people's living standard became increasingly higher. With many couples married at that time, the need for new houses increased, leading to planning for these new buildings. The houses became very neat and uniform. There were also renovations to meet people's needs better. Neighbor houses are connected one after another by shared gable walls. A cellar for Chinese cabbage, which was stored in the private garden before, was added inside the courtyard; and an entrance corridor formed naturally with the storage space becoming a part of the entrance space, which is a good place to enjoy the cool breeze during summer. This kind of house has been largely renovated by residents themselves in recent time. Typically people combined two storage rooms together forming a garage to accommodate the family's new car.

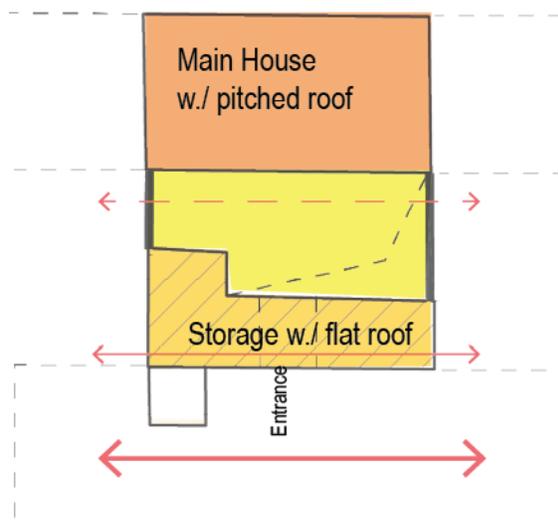


Figure 17 Type II Rough Layout



Figure 18 Type II photos

Type III (Figure 19, 20):

With rising living standards, two-story houses were built, also neat and uniform. Some houses share gable walls, some don't. Families become more separated than with the former two types. The courtyard is not central any more—the main building itself is located in the center and the large courtyard is instead divided into small pieces around the building. Some Type III buildings keep the entrance corridor like Type II buildings. Some use a gatehouse for the entrance gate. But the gatehouse is a “modern” type in people’s opinion, losing the sense and quality of the local traditional gatehouse (Figure 20). For the Type III buildings in

Leng Jia Cun, the flat roof is moved to the back of the house and becomes smaller. The organization of the first floor is similar to Type II with the addition of the second floor for bedrooms and family room.

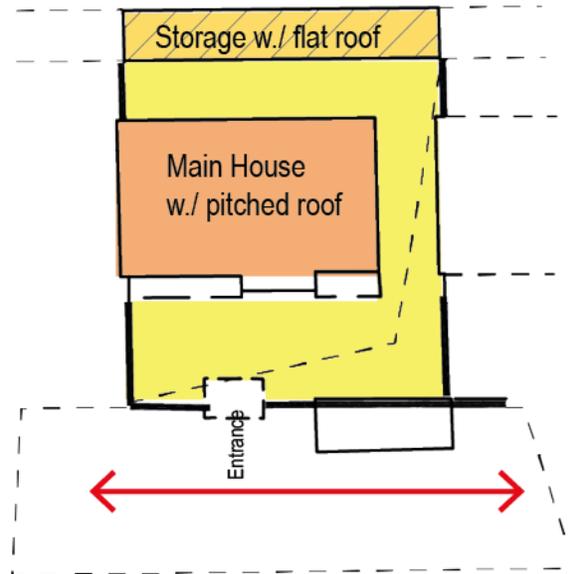


Figure 19 Type III Rough Layout



Figure 20 Type III photos

In order to let readers know more clearly about local dwellings, I will talk about their different facets.

1.2.3.2 Hearth: cooking devices

The typical cooking pot is large, which is not only convenient for people to cook enough food quickly for a big family or during the holidays, but also for the local specialty of steamed buns. Wheat is the main grain in Rongcheng, so cooked wheaten food but not rice is the main food for local people. Shandong steamed bun (Figure 21) is known by the country to be big and delicious. Rongcheng people have the tradition to use flour to make special steamed buns (Figure 22) during elders' birthday, infants' hundred-day celebration, wedding days and the Spring Festival, etc. Those steamed buns are made in different forms to show people's wishes for different things.



Figure 21 Steamed Buns in Shandong (Source: Google Image)



Figure 22 Special Steamed Buns in Rongcheng (Source: Google Image)

The large pot is heated by combustible materials, such as straw and coal. It is convenient for a large amount of food in one time, but not for every-day cooking. Now people also consume liquefied gas to cook more conveniently. Using the large pot also has another intention, especially in winter—to heat the “Kang”—a large bed.

1.2.3.3 Heating and cooling system

The large pot mentioned above is a part of the house heating system (Figure 23). The combustible materials goes into the stove causing fire to heat the pot, then the hot smoke produced by the combustion goes through the area under the Kang, and then go up through the brick wall to the chimney. Kang is a heated bed constructed mainly by using flat thick stone plates and mud, supported by brick walls under them. The heated Kang, which is comfortable and good for health, is loved by locals and widely used in the villages of Northern China.

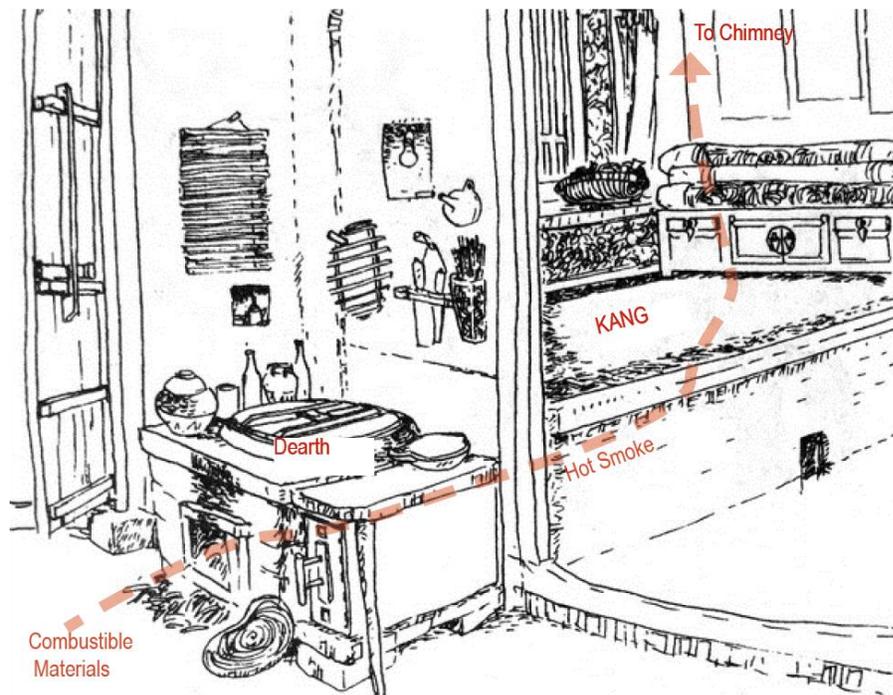


Figure 23 “Kang” and Dearth (Source: Google Image)

All three housing types used Kang as a heating method, but its dominance is changing. People have added coal-burning furnaces, together with the Kang to warm parts of the house. The Kang and furnace are the main heating sources for most people, with decreasing use of furnaces burning coal. People have started to install water-cycled radiators that warm the whole house, and though people's heating systems are changing, their love for the heated Kang remains.

Almost nobody installs or needs air conditioning in the villages. Even in crowded areas of the city, many people barely use it because for most days the summer is cool.

For hot water, both in villages and in cities, solar water heaters are widely used to get hot water for showers except for in high-rise towers. The solar water heater industry is quite well-developed in Shandong Province because of the large range of use there.

1.2.3.4 Building Material

Because of the rich local reserves of high-quality stone, all three house types use stones as the main foundation material. For Type I, the buildings typically use stone for walls as well, together with black bricks. For II and III, they use ordinary red bricks and cement for the wall, whose thickness is 24 centimeter. For the roof, all three building types have the same kind of solid wood skeleton. Type I uses seaweed as a roof covering material while the other two types typically use red tiles. Because of the development of coastal aquaculture industry, the amount of the seaweed coming to the shore has decreased dramatically such that many Type I buildings are being changed from seaweed to tiles.

Seaweed House is unique to Jiaodong Halbinsel and Rongcheng has the most Seaweed Houses left, making it a tourist attraction. Using a complex construction technique, local seaweed roofs are strong enough to last up one hundred years and is considered a provincial-level Intangible Cultural Heritage. A Seaweed House is cooler in the summer and warmer in the winter.

1.2.3.5 Opening

Windows in Type I buildings are smaller and fewer than in the other two types. Part of the reason could be the wall materials—it's hard to have big openings in a stone wall. The Type II and III buildings have big windows with a typical size of 2 meters by 2 meters and a window to wall ratio (WWR) for the main house more than 0.5, getting enough sunlight for interior space and good natural ventilation situation.

1.2.3.6 Plants and Garden

Every family has its own private garden in the village with the size relative to the number of family members. Local people, both citizens and villagers, also grow fruit trees, such as fig and cherry trees around the building, if they can find any suitable place. They also grow vegetables around the building so that people can get fresh vegetables conveniently.

In most cases, plants are not used to create a space, except in Type II buildings. From the figure 18, we can see that the entrance has a green space. People train grapes in the house entrance letting its vines and leaves spread above the entrance forming a green space during the summer. The shelter brings the entrance

corridor more cool breezes during summer days and it also acts as a visual filter, about which I will write further in 4.2.

1.2.3.7 Plumbing system

For most villages, there is no plumbing system at all. People use gutters and drainage ditches for rainwater drainage together with relatively clean parts of domestic sewage (grey water), which includes kitchen, laundry and shower sewage. Toilet sewage is separated from this drainage system. Excreta is stored in a small, simple septic tank. People use the decomposed excreta from the tank occasionally as a kind of fertilizer for gardens and fields. Garbage is collected in specified places and rubbish trucks paid for by the government come to collect every day, which is one policy of the new rural area construction project, which I will discuss in the next part.

Some villages are changing or have changed the drainage system. In villages close to the city area, plumbing has been added to connect to the city system. In more remote villages, they constructed plumbing to collect the whole village's toilet sewage together using biogas fermentation technology or digestion tank technology to "clean" the feces.

1.3 Problems

1.3.1 Driving forces

One driving force for the problems is Rongcheng itself (Figure 23). This thriving city attracts non-native people to move there and play a role in the development of this area. New residential buildings are needed for both local people

and outsiders. The new developments bring opportunities but also challenges, including problems which I will discuss in 1.3.3.

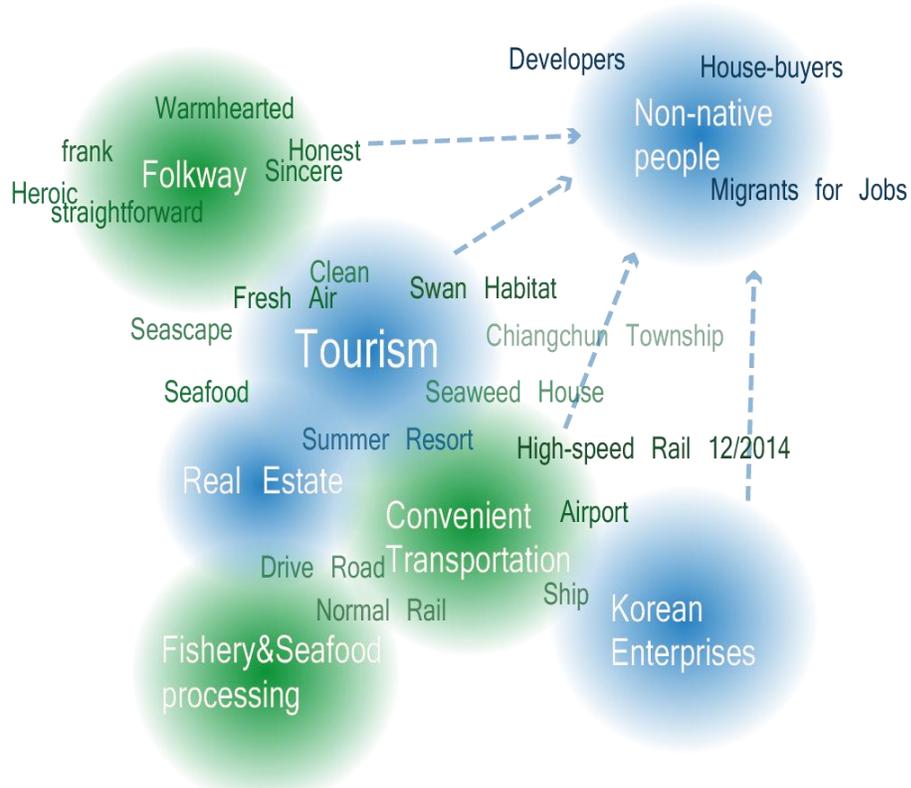


Figure 24 Rongcheng Impression / Keywords

Another driving force is government policy. Document No. 1 of the Chinese central government has been focused on issues of agriculture, farmer and rural areas for consecutive 12 years since 2004. Rural issues are treated as the most important of all the important works for the Party. Large numbers of villages have renovated with government appropriations during the past 12 years. Nonetheless, in comparison to various and more detailed regulations about city development, regulations about rural areas are still very limited and under-developed, especially in architecture.

In the current local regulations, I only found three rough guidelines for village development other than the building height limitation of 12 meters:

- City-center Villages: renovate the villages to integrate them into Chinese international-style cities;
- Further Villages: encourage residents to resettle in newly-developed buildings;
- Remote Villages: renovate existing conditions to achieve clean and tidy villages.

These vague, rough and limited regulations about village building development indirectly reflect people’s confusion and struggles about what to do.

1.3.2 People’s confusion and struggles

Examples of city residential buildings are shown in figure 25—International Style with some characteristic local decorations. Typical local traditional buildings are shown in figure 26. Facing the urbanization of the whole society, people residing traditional buildings are experiencing the force of changes with confusion. Nonetheless, native people’s hopes for a better life are unchanged.



Figure 25 Rongcheng’s International Style Buildings



Figure 26 Traditional Buildings

Almost all traditional villages, including those at (near) the site in Rongcheng have been renovated by the village itself with the encouragement of the local government. The goal is to “achieve clean and tidy villages” as the regulation says. Government guidelines include setting specified garbage locations for daily pick-up, roads paved using cement, painting house walls along the main street into a uniform color, providing running water, constructing village parks and building public village space for recreation. Most of these measures have not be very appropriate or successful.

Other than these basic renovations, some villages with a better economic situation or transportation are facing more “choices”. I have selected a few villages (Figure 27) that demonstrate people’s struggles about the future of traditional villages.



Figure 27 Locations of selected villages

The first village, Zhao Jia Cun (Figure 28) is close to the site, Leng Jia Cun—only 15 minutes walking distance. The village cadres lead Zhao Jia Cun villagers to develop their homes by themselves with Rongcheng government’s help and without developers’ participation, which saved the village a lot of money. The whole traditional village was totally demolished, and almost all villagers move to the newly-built good-quality medium-rise residential buildings. People there are happy about and proud of the changes when I talked with them in the summer, 2015. The new buildings are clean: people use natural gas for cooking and for heating water for radiant floor heating—no more combustible materials; domestic sewage is collected and handled together in a covered digestion tank. The village plans to develop tourism as a place for people to experience agricultural activities and for artists to visit and live. The village has signed settlement agreements with more than 20 artists according to a piece of news on the Rongcheng government website.



Figure 28 Zhao Jia Cun Photos after development

Although the villagers are happy about the changes, when I asked if the old traditional houses had all the modern facilities just like the new buildings, which kind of building they would choose, their answer were “the old ones”. New buildings signify a better life for villagers. But people’s excitement for the new life and their eagerness to move away from the inconveniences of the old life, result in an overlooking of lifestyle aspects that are essential for people and local culture.

The second village is Qing Yu Tan (Figure 29), a rich coastal village. It was developed by itself for a period before large numbers of developers entered Rongcheng. In this village we can still see some Type II and Type III traditional buildings, which are quite good in quality—similar to villas in the city.

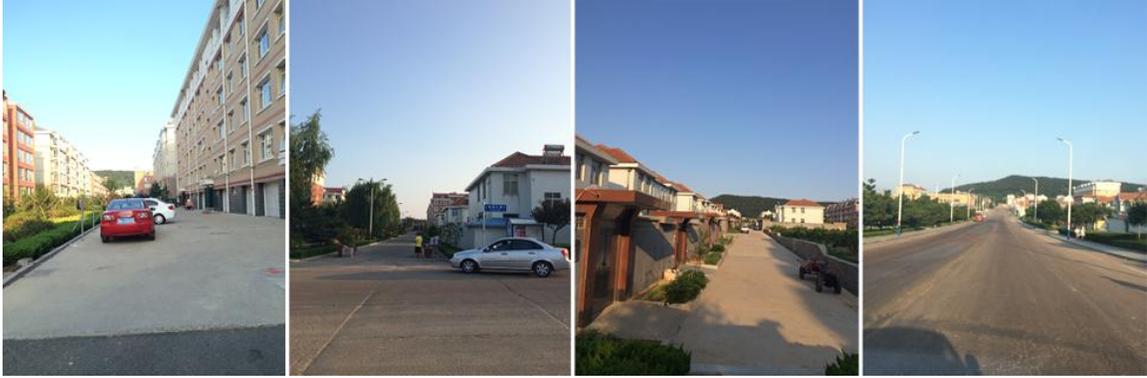


Figure 29 Qing Yu Tan Photos

The Third village is Lu Jia (Figure 30), which is a coastal village as well. It is also close to the local downtown and a main road in Rongcheng. Developers came hoping to develop it, but the village refuse by vote to be developed. Most villagers are content about the living situation right now, but what if they were “forced” to change by this society or wanted to change someday, where should the traditional village go? The right answer for Rongcheng is hard to see.



Figure 30 Lu Jia Photos

The last village, Wafangzhuang Cun (Figure 31), I choose is next to Lu Jia and even closer to the city main road. It was being developed by developers during the summer in 2015, which is shown in the photos.



Figure 31 Wafangzhuang Cun photos during developments

When facing urbanization process, traditional villages seem to have “choices” to decide whether to develop by itself, by the developers or to keep what it is. But in my opinion, without realizing and focusing on essential lifestyle elements, which are a part of the reasons for local folkway and culture, and which ultimately determine who the local people “are”, the “new” village and city offer people very limited choices to live relative to their preferred ways. The “choices” themselves shows people’s confusion, while many precious things are being ignored by individuals and the society.

1.3.3 Problems



The society is pushing the traditional buildings and villages into city “villages”. My grandpa doesn’t like city medium-rise buildings, and he always say “if I live inside, I have no people with whom to chat.” He is both wrong and right; if all villagers in Leng Jia Cun move to a new medium-rise building, he will still be able to find his old friends to chat with and have tea, because people know each other—their old relationship would not disappear with the change of building, although the building itself doesn’t encourage it. But at the same time he is right: what about the following generations? The building itself discourages people’s communication, which will prevent the younger generations from interaction. With time passing by, I can see people’s familiarity with each other will decrease until it disappears most likely. Then Rongcheng would end up being any city in this world.

Currently, in China, rural areas are looked down upon by most people, including those coming from them. Although I have already been able to discuss issues about rural areas objectively, I still feel slightly embarrassed when people ask me where my home is, resulting from a subconscious diffidence. Where does the lack of confidence come from? From villagers’ not knowing clearly enough about themselves and the essential qualities of the villages in which they live. Architects

need to find out the essential things that define local people, and express them in new ways to let people become aware of how they exist so that when they need to they can think meaningfully about change. Architecture could act like an education book—and the teachers are the people themselves.

What are the essential things then? I think that one of them must be human communication and interaction (Chapter 3).

CHAPTER 2

PRECEDENT STUDIES

2.1 Bridge School by Li Xiaodong

Location: Pinghe, Fujian, China

Budget: RMB 650,000

Area: 240 sqm

Project Year: 2009

The Bridge School is located at a rural area--Xiashi Village, Pinghe County in Fujian Province, China (Figure 33). In the center of the village, there are two large circular Tulou, a type of traditional house in Fujian, with a creek between them. The Bridge School is just above the creek.

Tulou, as a traditional house type of Fujian Province that emerged mainly from several periods of dynastic change, contains many memories and emotions of local people. There are different kinds of the Tulou with different shapes (Figure 36), but the Tulou with a circular shape represents to local people what is the most historic type. There is a TV program named *The Woman in Tulou* (2013) (translated by author) shows a struggling history of a clan with a woman as the mainstay, rooted in a circular Tulou. Also, the Tulou shows local people's needs to protect their own clans from outside attack. Because of this, the Tulou is relatively closed with windows of limited number and in a higher location on the outside walls. People in a big clan with the same family name live together inside their own Tulou, forming a strong cohesive force. In legend, the two clans in the two circular Tulous in Xiashi Village were foes long before. Considering these elements, the Bridge School is not only key as a school for the old village, but also a bridge for villagers.

The program for the Bridge School consists of two terraced classrooms at the two ends of the main school building, which face the two old Tulous separately, a small library in the middle top, and a suspended bridge for transporting people without the need to go through the main school building above. During non-school times, the two classrooms can be used as stages for traditional local performances, such as puppet show. The yards outside the classrooms offer villagers public spaces as well. This design solves the transportation problem with the bridge, offers children in the village a comfortable education location as a school, and brings the whole village a communication and entertainment core as a public space. With the Tulou building type encouraging more than enough privacy for the family or clan, the bridge school offers a large meaningful public space. It seems like the balance between privateness and publicness is realized by the coexisting of extreme private Tulou and extreme public school. (Figure 34)



Figure 33 Xiashi Village Map (Source: Google Map)



Figure 34 Private vs. Public

The material selection also reflects Li Xiaodong's deliberation. "Designing in the context of traditional buildings, the form language tends to fall into two extremes: one is indulging into an exaggerated show of contemporary technology; another is lingering in the nostalgia of the preindustrial period." Li Xiaodong wrote for an essay on *Gooood* website, he hoped that he could "find a way in-between the two extremes through a humble and modern technology language." (translated by author) The whole building uses steel trusses as the main structure with a wood gratings "skin" that allows the sight line to go through it to the scenery outside. The combination of wood and steel fits the building into the context quite well.

From this precedent study, I found that the extent to which each family, clan or village are willing to be open to the public has a great impact on the lifestyles of local people. Analyzing the open-to-public degree in a village is very crucial for figuring out ways to keep or improve the original lifestyle.



Figure 35 Bridge Achool Photos (Source: Li Xiaodong Atelier)

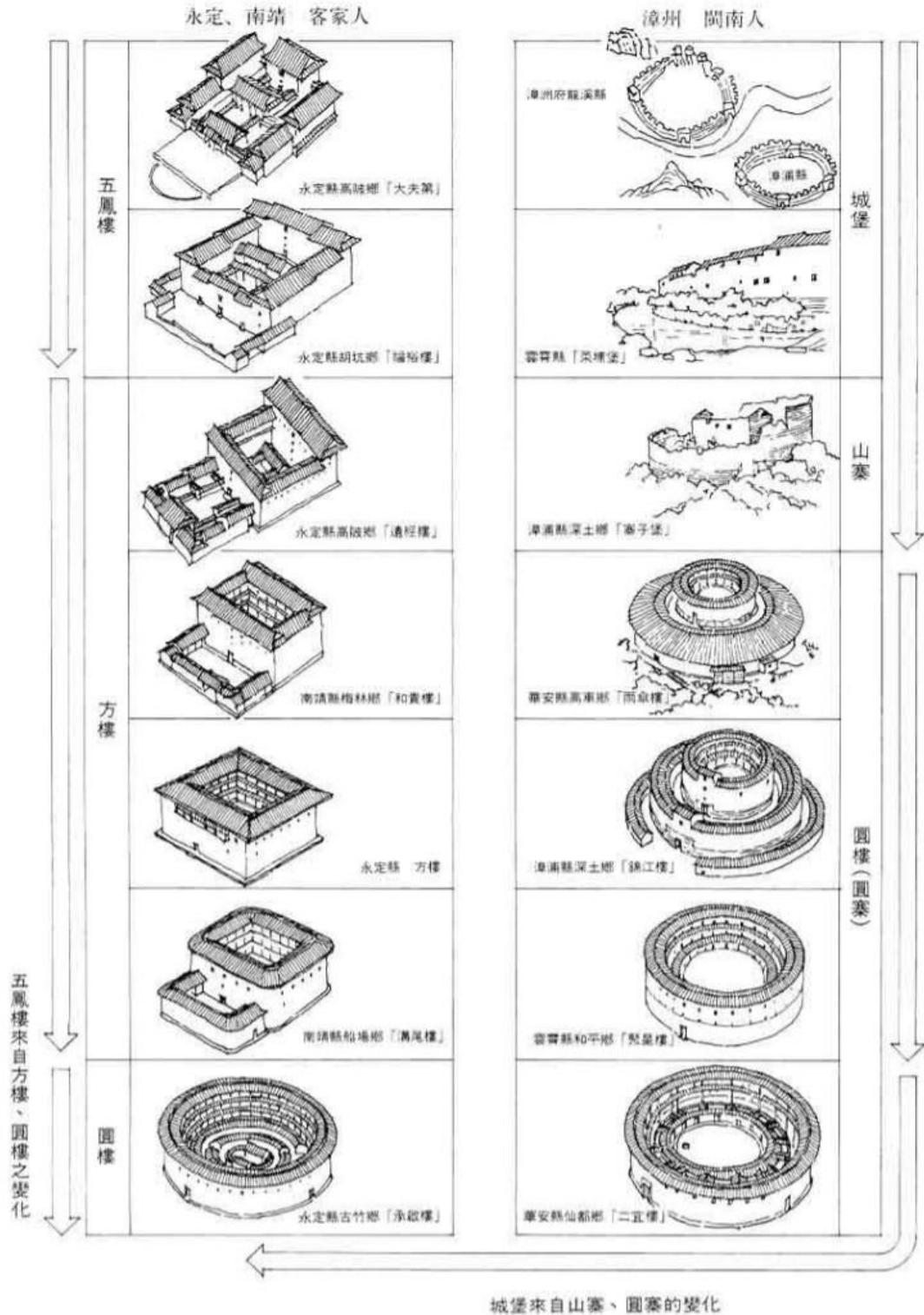


Figure 36 Tulou Type and Development (Source: Google Image)

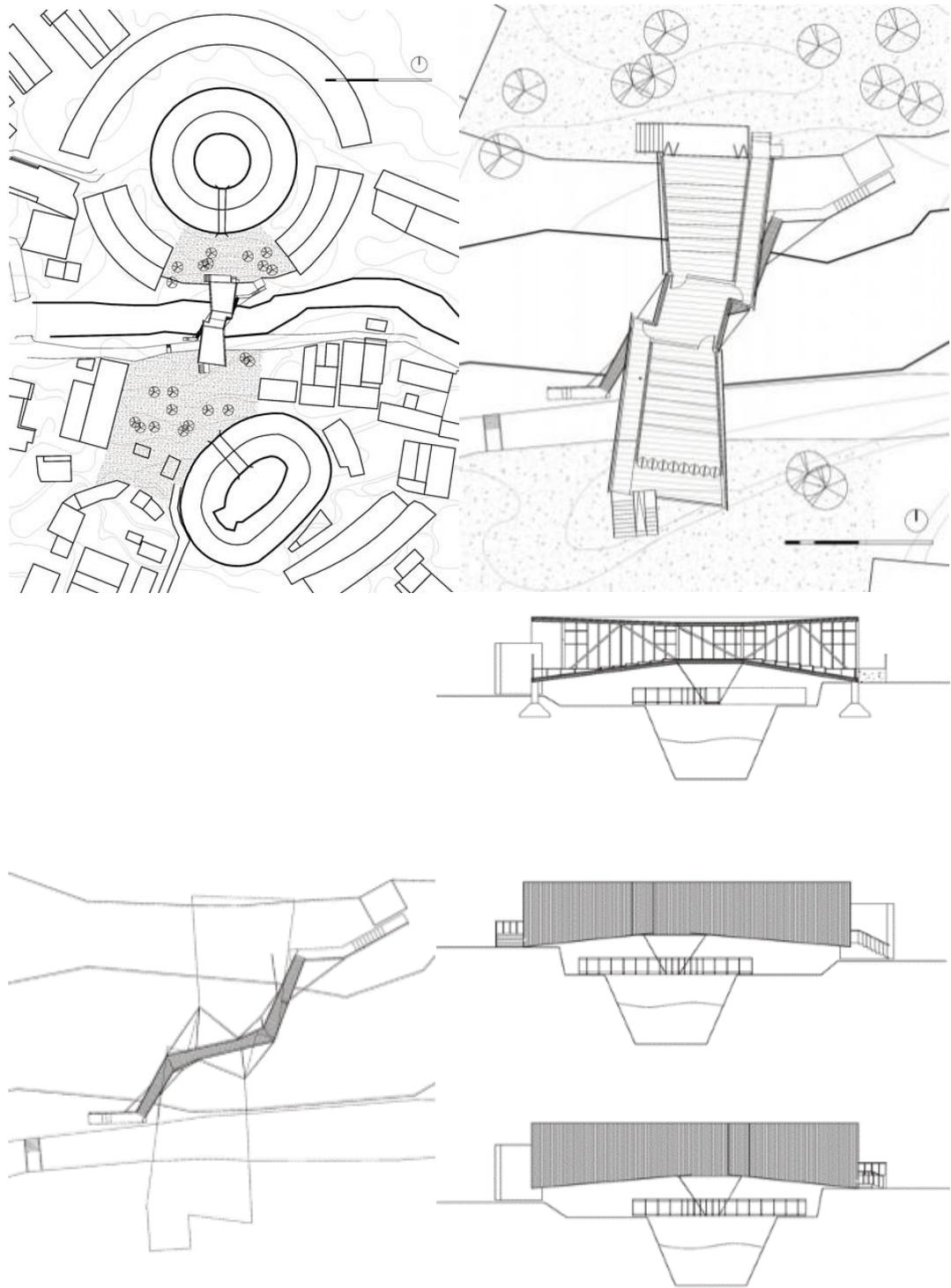


Figure 37 Bridge School Documents (Source: Li Xiaodong Atelier)

2.2 Ningbo Historic Museum by Amateur Architecture Studio

The Ningbo Historic Museum is located in a newly developed area in Ningbo, which is near Shanghai in southeastern China. The Amateur Architecture Studio got this project through an international competition. When the construction of the Ningbo Historic Museum started, only half of old villages were left from thirty surrounding. The traditional villages had been demolished for new economic development, and the indigenous residents were settled to elsewhere—usually in media-rise or high-rise apartment buildings in China. The local government’s intention is to design that area to be a “small Manhattan”. We can see some clues from Figure 38.

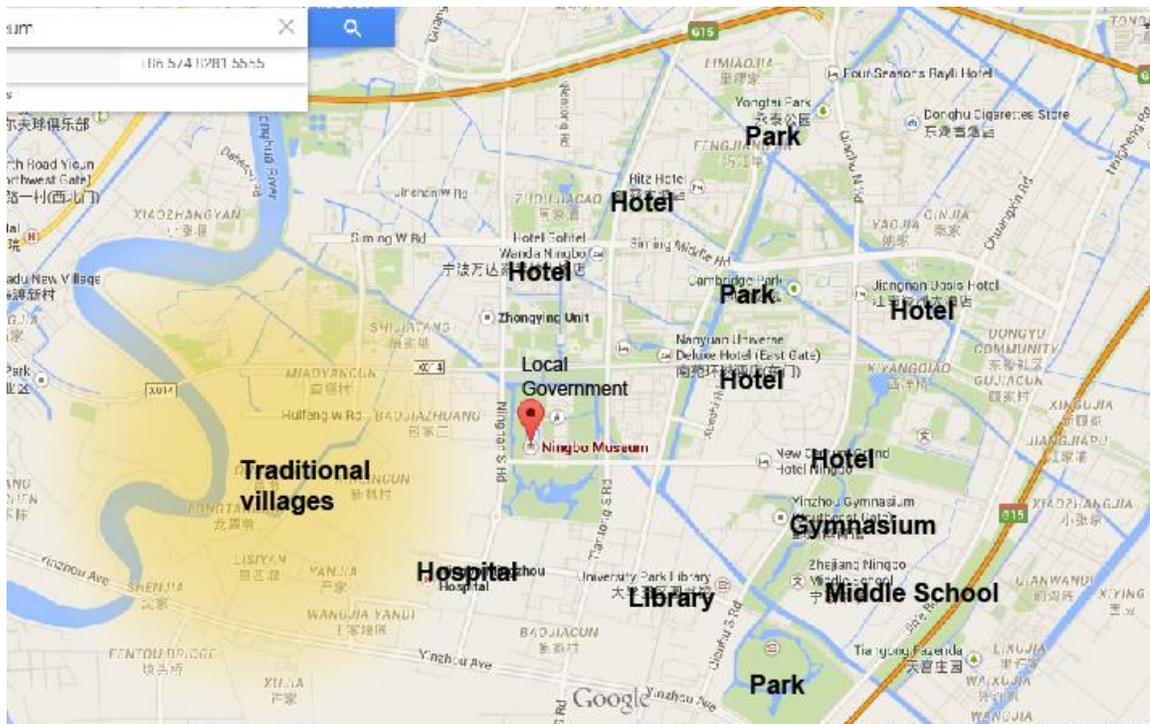


Figure 38 Site Analysis (Source: Google Map)

From Figure 39, we can see that to the north of the Ningbo Museum are two large government buildings connected by a massive plaza. In the south is a large

park. To the east is a culture-center, and high-rise residential buildings & mix-used buildings. To the west are newly-built high-rise office buildings.



Figure 39 Site Analysis (Source: Google Map)

When Wang Shu designed his work, he knew that there would be more than 100 high-rise buildings around the museum in the future, so he intentionally limited the building's height to below 24 meters. This height could form a contrast to the future high-rise buildings around, and also “fragmentally means a kind of low-lying city with height limit of 24 meters, which exists between artificiality and nature”, which reflects his awareness of the urban condition. Wang Shu likes Chinese traditional landscape paintings very much, and he got much inspiration from them for his design. In one of his lectures, for this project, he mentions a painting (Figure 40) by Li Tang, a Song Dynasty landscape painter, to be a source of inspiration for the Ningbo Museum. Facing the vast and empty scale and vitality-loss of the site resulting from the demolition of traditional villages, Wang Shu decided to design a mountain: “When I set out to design the building, I thought about towering mountains. I cannot design anything for the city, because the city doesn't exist here. So I wanted to do something of life. Finally, I decided to design a mountain.”

The base of the museum is simply rectangular, but the upper section “cracks” to be “mountains’ fragments”. Hidden in the cracking upper section is an open platform. According to four shape-different breaches, people can see the distant city, fields and mountains. (Figure 41)

Visitors enter the museum from the center main entrance, which is a compressed entry with a 30 meter span. We can see from the plan drawings attached in the last that, the whole structure includes three “valleys” with stairs—two are interior and one is exterior, four “caves” as the entries, and four “hollow” yards—two are in the center, two are hidden in the deep. Using Wang Shu’s words, the design represents an intersection of “three valleys crossed by large stairways—two on the inside and one on the outside”.

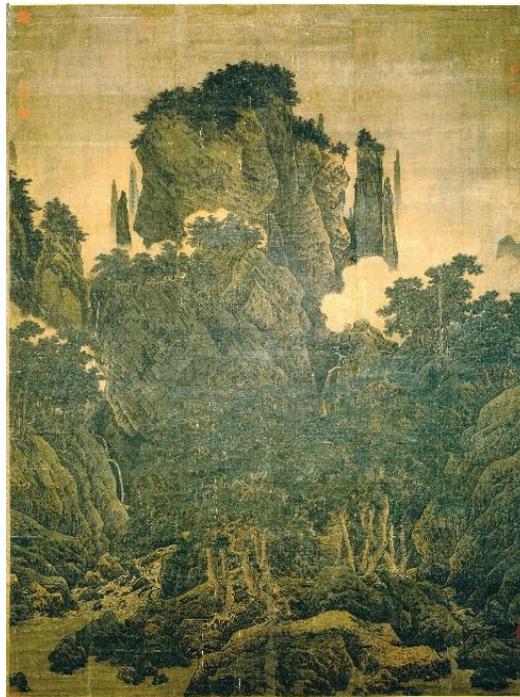


Figure 40 *Wind in the Pines Among a Myriad Valleys* by Li Tang (source: Google Image)



Figure 41 Ningbo Historic Museum (Source: Google Image)

When talking about the Ningbo Historic Museum, one cannot ignore its use of material. The design combines two building methods: reinforced concrete, which was moulded on the surface using bamboo cane, and the Wa Pan Technique (the re-use of existing materials). The surfaces of the walls reveal the presence of over 20 different types of recycled tiles and bricks, which were recovered when the old villages were demolished. Wa Pan Technique is a local traditional technique of Ningbo domestic buildings—from the Ming and Qing Dynasties. At that time, because of the lack of construction materials, the ordinary craftsmen used the rubbles and debris discarded by rich people to form such a technique. The debris of building are recyclable for Wa Pan Technique. Tile and brick come from earth, which means they identify better with nature than does steel, plastic material and concrete, etc. Because of this characteristic, traditional buildings in Ningbo have a long life span. Longevity doesn't come from the strength of materials, but from

‘recycled processes’—local people repair their houses constantly using Wa Pan Technique, a process which is sustainable in a way. Actually, however, this old technique was being forgotten by the craftsmen before Wang Shu’s use because of the modernization process of China. During the construction of the museum, Wang Shu helped the craftsmen and builders to recall this old technique. Now these builders are much sought-after in the construction market.

Wang Shu didn’t just use this technique directly, he innovated with it. The traditional Wa Pan Technique can only build houses up to 8 meters, but the museum needed to be 24 meters. Wang Shu combined the old bricks and tiles with concrete and did a lot of tests for this new innovation. The difficulties of this process are unimaginable. Because in China, there were no construction standards or acceptance criteria for such techniques before, Wang Shu and his design team has to have large amounts of meetings and seminars to constitute standards and criteria for it. Also they need to teach the builders to learn this “old but new” technique.

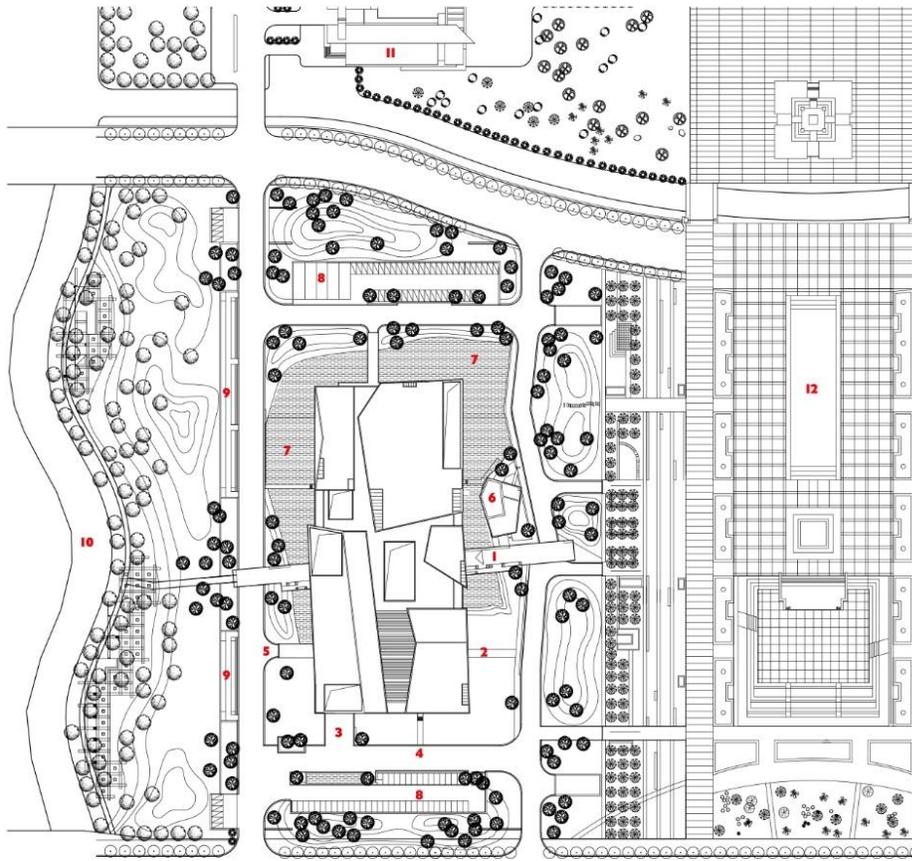
In Wang Shu’s article about the Ningbo Historic Museum, he mentions that: both the Wa Pan walls and the bamboo moulded concrete wall are changing the knowledge of architecture, because the final result is only half in the architect’s hand. In the concrete pouring process, the bamboo strip templates’ deformation is unpredictable sometimes. And for Wa Pan Walls, although architects drew colored elevations for every exterior walls, elaborating on the arrange and ratio of different kinds of tiles and bricks, and printed large drawings to post on the site, there is no way to regulate exactly the distribution of dozens of materials and to track each craftsman’s methods of masonry with dozens of operating points hidden behind the

safety net on such a large site. He mentioned that in the construction process, fierce debates often came about regards to such problems as whether to accept the change beyond control or to redo large areas of work. He often said “let it be” to persuade different parties.

The Ningbo Historic Museum is a museum to collect ‘memory’. The building itself embodies this meaning as well. In one of his speeches, Wang Shu mentions that after the open of the museum, it became much more popular than they expected. What surprised him is that every day there are many old people visiting the museum and they usually stay long there. When Wang Shu asked them the reason, they said “because the museum lets them think of their old houses—their homes”.

Imagining such dialogues always makes me cry. It reflects a big conflict in China nowadays coming from the demolishing of old houses and villages. People are settled in new high-rise buildings, losing their old and long-life-span houses and for some, even losing their fields. But they didn’t only lose these things, they lose their memories as well. Old buildings are torn down, and new buildings are growing. This conflict is one in which architects can and should help for China’s future. Wang Shu’s design is an important example of the approaches.

The influence of the Ningbo Museum to my thesis project, I think is in the philosophy or attitude embodied in it. An even more direct precedent study, the Southern Song Dynasty Imperial Street by Amateur Architecture Studio, follows.

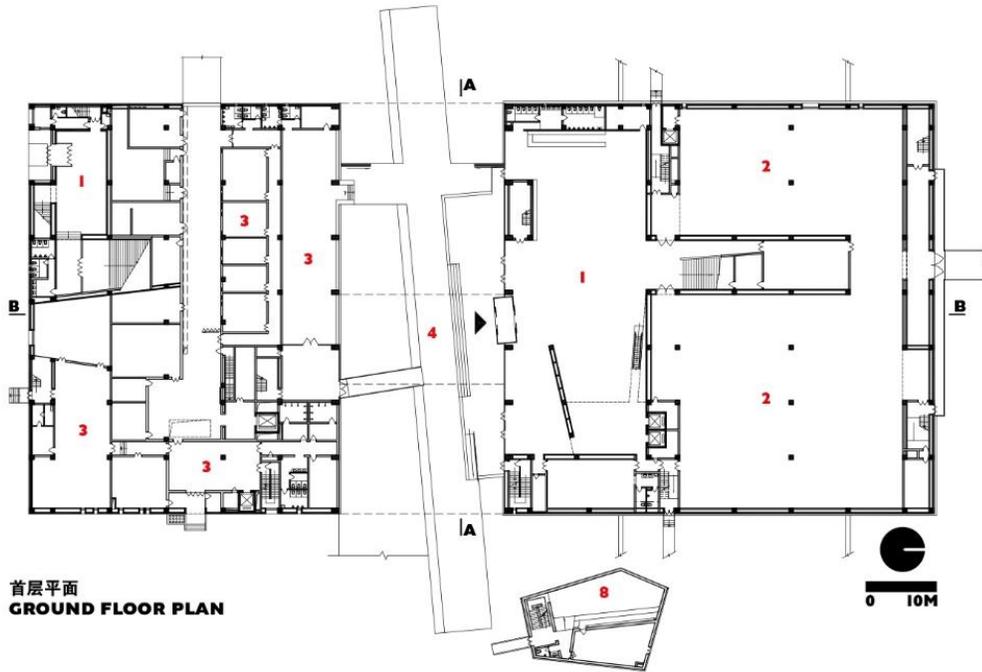


基地平面
SITE PLAN



- | | | |
|--|----------------------------|-------------------------------|
| 1 主入口
MAIN ENTRANCE | 5 运货入口
STORAGE ENTRANCE | 9 自行车停放处
BICYCLE PARKING |
| 2 行政人员入口
ADMINISTRATION
ENTRANCE | 6 餐厅
RESTAURANT | 10 河流
RIVER |
| 3 次入口
SECONDARY ENTRANCE | 7 池塘
POND | 11 政府大楼
MUNICIPAL BUILDING |
| 4 办公区入口
OFFICE ENTRANCE | 8 停车场
CAR PARK | 12 广场
PLAZA |

Figure 42 Site Plan (source: Google Image)



- | | |
|-----------------------------|-----------------------------|
| 1 主大厅
MAIN HALL | 5 后院
COURTYARD |
| 2 展厅
EXHIBITION GALLERY | 6 多功能厅
MULTIPURPOSE ROOM |
| 3 办公室
EXHIBITION GALLERY | 7 自助餐厅
CAFETERIA |
| 4 入口
ENTRANCE | 8 餐厅
RESTAURANT |

Figure 43 Ground Floor Plan (source: Google Image)

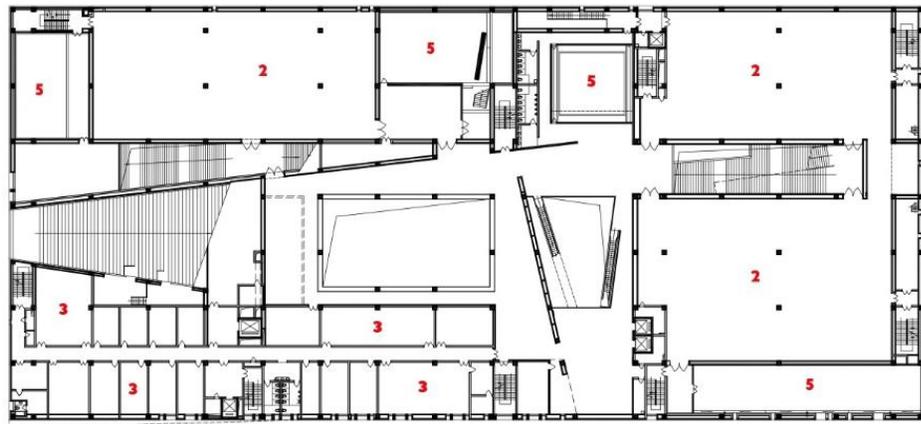
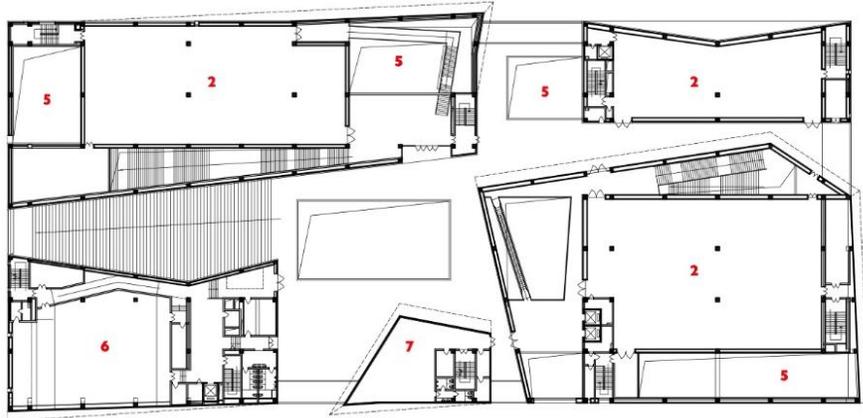
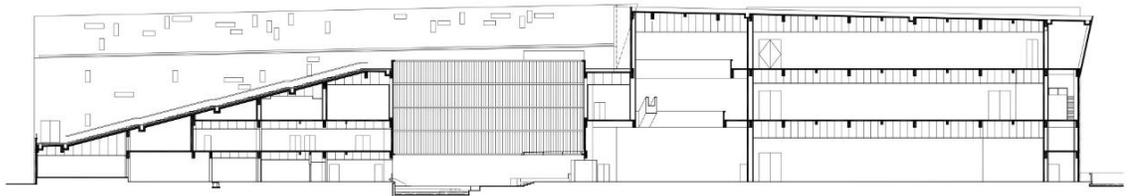


Figure 44 First Floor Plan (source: Google Image)



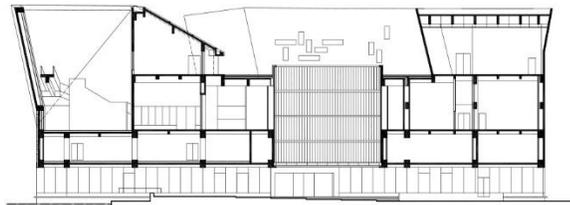
三层平面
SECOND FLOOR PLAN

Figure 45 Second Floor Plan (source: Google Image)



纵剖面
LONGITUDINAL SECTION

Figure 46 Longitudinal Section (source: Google Image)



横剖面
CROSS SECTION

Figure 47 Cross Section (source: Google Image)



Figure 48 Photos (Source: Google Image)

2.3 Southern Song Imperial Street by Wang Shu

The Southern Song Imperial Street (1127—1279) (Figure 49) is located in Hang Zhou city, which is the capital of Southern Song Dynasty. With the length of 4185 meters (2.6miles), it was the emperors' specified road to the ancestor cult place in the Southern Song Dynasty, one which common people were not allowed to enter. After the death of Southern Song Dynasty, at the loss of restriction from royalty, the street became narrower with the development of commercial and residential spaces on both sides of the street, losing its "royalty" feel. During the Ming Dynasty (1368—1644), the street prospered again with the attenuation of its political function and the enhancement of its commercial and recreational functions. During the Early Modern age (1453—1800) of China, Hang Zhou city was a colony because of the influence of war. At that time, the Imperial Street has become the epitome of the cultural integration and the coexistence of China and the Western world. Many western-style and mixed-style buildings appeared in Hang Zhou city. Foreign commercial firms also entered into Hang Zhou, competing with native businesses, forming China's most cosmopolitan commercial street at the time. After the foundation of the People's Republic of China, with the withdrawal of foreign capital and the expansion of the city, the business center in Hang Zhou gradually moved towards the north, leaving the street to be a gathering point of some local, low and under-developed businesses. Although the original patterns and styles still exist, many buildings are dilapidated from years of neglect, and with the old municipal infrastructure and poor living conditions, they didn't meet the needs of modern living any more.

As a poor street with a long history, the Southern Song Imperial Street is a “heart disease” for Hangzhou people.

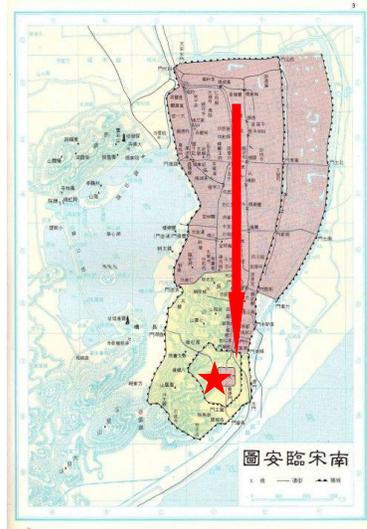


Figure 49 Southern Song Captical Map (source: Google Image)

In 2001, when Hangzhou government asked Wang Shu to revive this ancient street, one of the city’s oldest neighborhoods, people seemed to have abandoned it. There were only a few shops, street people are always sparse, with a few streetlights shining like wildfires at night. As for the architecture, it had diverse styles. With the complexity of the project, Wang Shu proposed the following requirements before he accepted the project:

1. Allow at least three years for the whole project, and before the start of the design, allow at least six months to do in-depth research, which is too slow for government projects in China at that time.
2. Refuse to do forced evictions and demolition and keep a sufficient number of indigenous people to maintain the charm of life.
3. Refuse bogus antiques.

4. Refuse to do only “a layer of skin” of the neighborhood facing the street, and design the neighborhood in depth.

5. Using new small buildings to reduce the street to the original width of 12 meters.

6. Do only 1 km demonstration.

As the Dean of the Department of Architecture in China Academy of Art, Wang Shu, together with more than two hundred students and teachers, came up with solutions after six months of investigation: stop the demolition completely; with the premise of refusing forced relocation of original residents, transform the old buildings in site, including the historic timber-framed houses, the Republican period architecture and the brick and concrete buildings within fifty years—the original residents are an important carrier of local aboriginal culture. In detail, this strategy can be divided into four aspects:

1. Tear down the buildings that are damaged seriously, unable to reuse and unable to function.

2. Protect well-preserved historic buildings as history museums or re-assert their functions.

3. Rectify and reform those basically sound buildings by re-trimming them to get them a second life.

4. Develop new buildings to improve the overall and reinvigorate the street.

In one area where the original house has been burned down, Wang Shu lead builders to dig out the remains of the Southern Song Imperial Street. They built a small museum in that location later. (Figure 50) The reserved buildings are mainly

those from the late Qing Dynasty to the early Republican Era, which vary from local traditional style buildings to Western classical buildings, and from wooden-framed buildings to early modernism buildings (Figure 51). These buildings were retained intact in the greatest degree.



Figure 50 Library (source: Google Image)



Figure 51 (source: Google Image)

Some old buildings were in bad repair and the walls of the buildings along the street were hung with all kinds of air conditioners and self-built disorganized sun visors. In the reformation of the building facades, the design team unified the whole street with the premise of keeping each style and each period buildings' own senses. The new façade elements include blinds, coin ornamentations and canopy. The material includes wood, brick and concrete. The colors of the new elements are

similar to or the same as ones in old buildings. (Figure 52)



Figure 52 (source: Google Image)

Wang Shu also designed new buildings, such as the viewing pavilion. The pavilion design idea came from the mountains, hoping that visitors to obtain the fun of ascending a height to enjoy a distant view. (Figure 53)



Figure 53 (source: Google Image)

In addition to the buildings' reformation and rectification, there are roughly about four other aspects: (Figure 54)

1. Road: Imitate the original Southern Song Imperial Street's arrangement, structure and materials, forming a street with walkable scale.
2. Water: Draw the nearby river water to the street. The water goes through thirteen landscape pools and go back to the river, forming a loop.
3. Square Wall: Reuse the traditional square wall to show the traditional street structure of Hang Zhou.

4. Light: The southern section of the street uses mainly warm-white color lights for those old buildings with other colors, such as red, orange, green and amber, being used as small decorations only. But as the street extends northwards gradually, where the business center is located, the street uses more colored lights to decorate the night.

The street now becomes a very popular tour destination and renting a shop position along the street is expensive, which deviates from Wang Shu's original intention. He intended to keep some cheap places for artists and vendors with help from the government.

In the summer of 2015, I visited the Southern Song Imperial Street with a curiosity about whether the life privacy of people living along the street will be disturbed by the publicness happened on the street or not. As a tour destination, the street is quite a public space, however, the residential buildings need enough privacy—contradiction exists naturally for such kinds of places as I thought. However, I didn't see abnormal disturbances. Although street people are elements of the street's publicness, they also have Jane Jacobs' "street eyes" to watch the street area.

Wang Shu's new theories and new ways of dealing with traditional buildings lead me to treat what I can see objectively and be honest facing this society.



Figure 54 Street Photos (source: Google Image)

CHAPTER 3

INTERACTION

3.1 Interaction Analysis

“..., we believe that human interaction and communication are the essential reasons for the city’s very existence.”

--THE CHARTER OF MACHU PICCHU

Why is interaction important? Many unnecessary conflicts in life come from the lack of understanding about each other, which interactions can help. If you know enough about another person, you will forgive him/her just like forgiving yourself. People tend to blame others more than themselves. But what if yourself becomes “others”—yourself will become the person be blamed by others in a way. Interaction helps people to understand each other: understand the life diversity and then respect the diversity.

What I have to emphasize is that although I am analyzing “interaction” now, it’s not about “interaction” or “privacy” singly. It’s about the flexibility for people to choose their own balance state about interaction and privacy during different times in one life. People are different and are changing. People having various personalities need various levels of privacy. During one single day, people’s needs about privacy could change. During daytime, people probably want more public activities, and at night, they might need more privacy. At different stages of each person’s life, the need could be different as well. Usually elders love to welcome people’s visit—no matter friends’ or strangers’.

Although both interaction and primacy are important for residential buildings, the whole community or village should support an atmosphere that encourages human being interaction and communication.

What is interaction? The following diagrams (Figure 55) show my analysis about interaction.

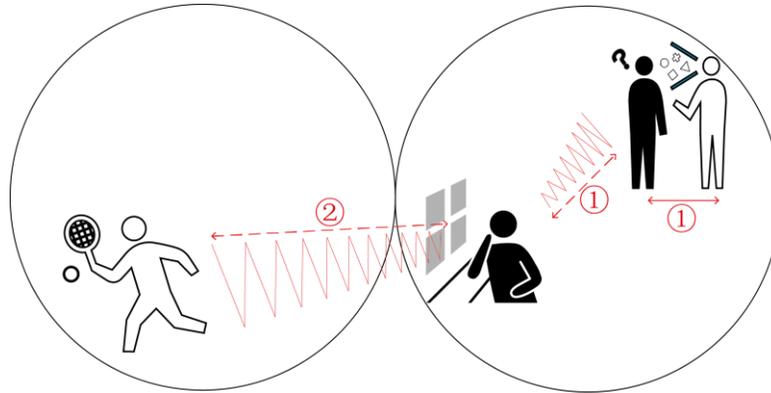


Figure 55 Interaction

Human interaction & communication include ① People’s interactions inside one space, and ② People’s interactions among spaces. Architecture works to define one space ① and connect different spaces ②.

About ① people’s interactions inside one space, it depends on people’s relationship inside the space, which defines the level of privateness/publicness in one separated space. As shown in figure 56, for family-buildings specifically, the solid circle means family member, the hollow circle means non-family number and the square means space. In more general situations, the solid one could mean people who are closer. The more people inside one space know each other, the more private the space can be. The diagram also shows “possible activities” that correspond to the abstract dot diagram in order to better express that condition.

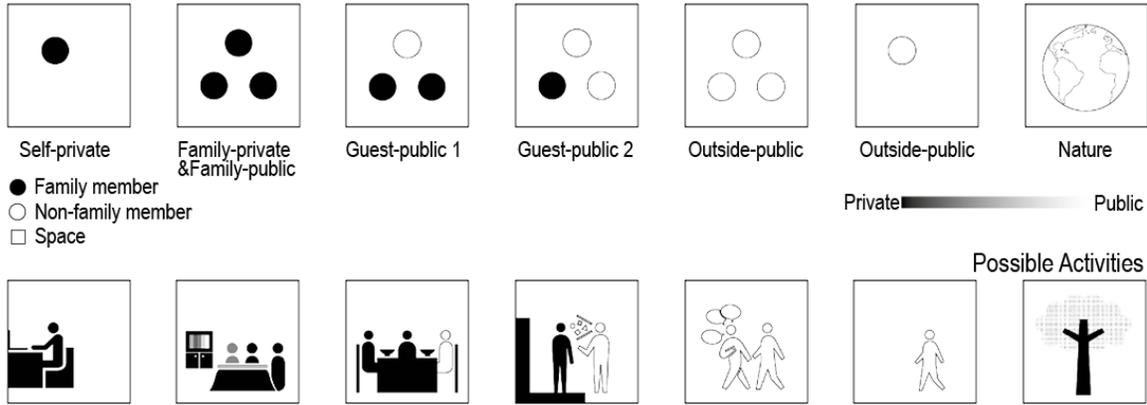


Figure 56 Interaction-1

② People’s interactions among spaces, has an important relationship with the organization of the spaces (Figure 57). With different kinds of spatial organization, the spatial interactions can be different.

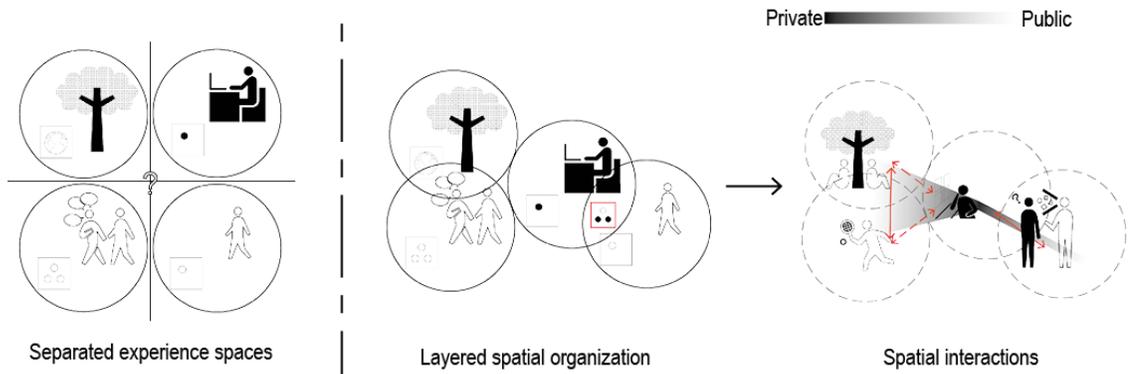


Figure 57 Interaction-2

The two aspects concerning interactions have a direct impact on my design, which come from my analysis from traditional houses (4.2). I will use this abstract rule about interaction for my new design (Chapter 4).

3.2 Problems related to Interaction

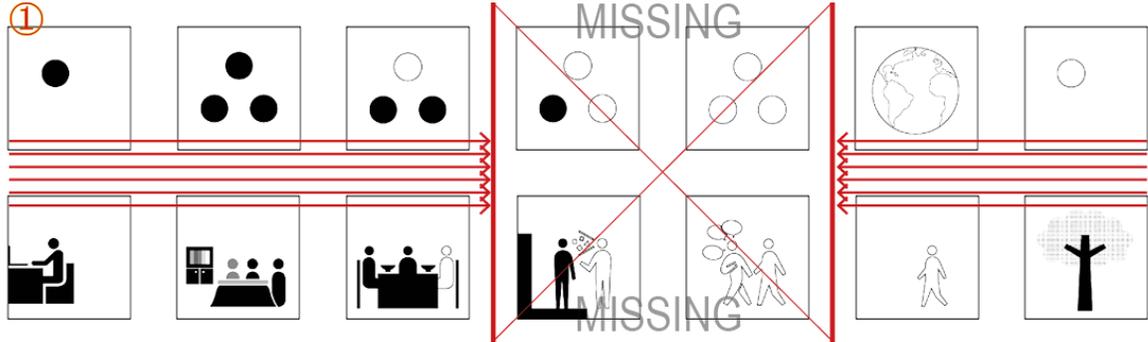


Figure 58 Problem-1

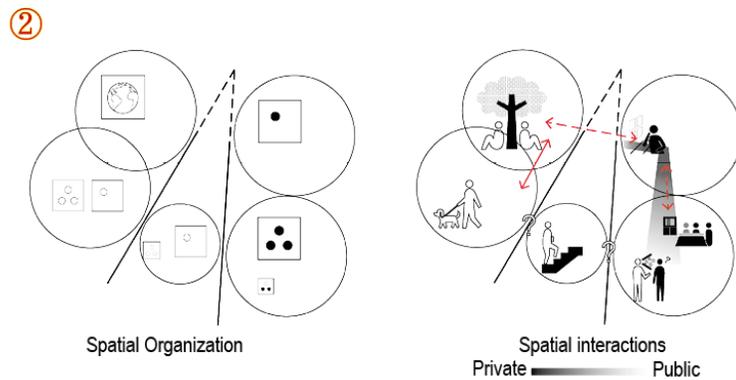


Figure 59 Problem-2

A typical medium-rise building in a city contains enough private space: for oneself, for a family or for friend visits. The city environment also offers many public spaces: just imagine walking on a busy street in New York City or Beijing. But the modes between these two (private vs. public) seems to be lacking (Figure 58). Generally speaking, in visual terms, people inside houses can only interact with outside people through windows, which is a very weak connection. Also, people in public spaces have very little accesses to the private areas, which might be one purpose on the part of many designers—to keep enough privacy. As I mentioned above, it's not about interaction or privacy singly—it's about the flexibility to choose a kind of balance state corresponding to people's needs at different times, in which

the whole environment should encourage interaction. But what I see in the typical medium-rise building design is that two extremes never meet and that interaction is discouraged.

For this problem, I think that stair spaces (circulation spaces) in a building can play a big role (Figure 59). For a typical medium-rise building in a city, the stair space seems like the most boring part. I remember many times when I would walk fast in the staircase in order to get out of that space quickly. Most people entering a building need to pass through a staircase, but we don't see enough interactions corresponding to the frequency of passing-through. It's very normal that people living inside one building never talk with each other. Stair spaces (circulation spaces) could be a very reasonable trigger point for my design.

CHAPTER 4

DESIGN

4.1 Design Intention

My design intention is to design a new kind of building that is respectful of local traditional lifestyles, but also integrated with contemporary lifestyles. Because people with common ancestors in one traditional village typically know each other very well, communications and interactions happen very frequently in different ways. My design intends to keep this traditional lifestyle and meet the contemporary needs, including enough privacy and increasing density. It offers people the freedom and flexibility to choose their own balance of states of interaction during different periods, which helps people to understand and respect the diversity of life, respects the importance of traditional culture-related activities, and welcomes new-comers by letting them feel at home (Figure 60). In addition, what's important for the design is to help local people have more objective judgments about themselves and their hometown.

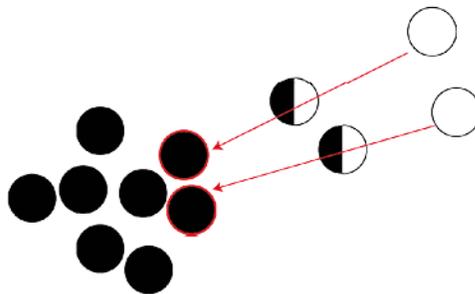


Figure 60 Welcome newcomers

Because interaction is an essential aspect of this design, I will use the interaction-related diagrams as main vehicle to explain other details at the same time.

4.2 Interaction in Local Traditional Building

I chose the Type II building that I mentioned in 1.2.3 as the focus for further study. The following figure 61 is its the typical plan.

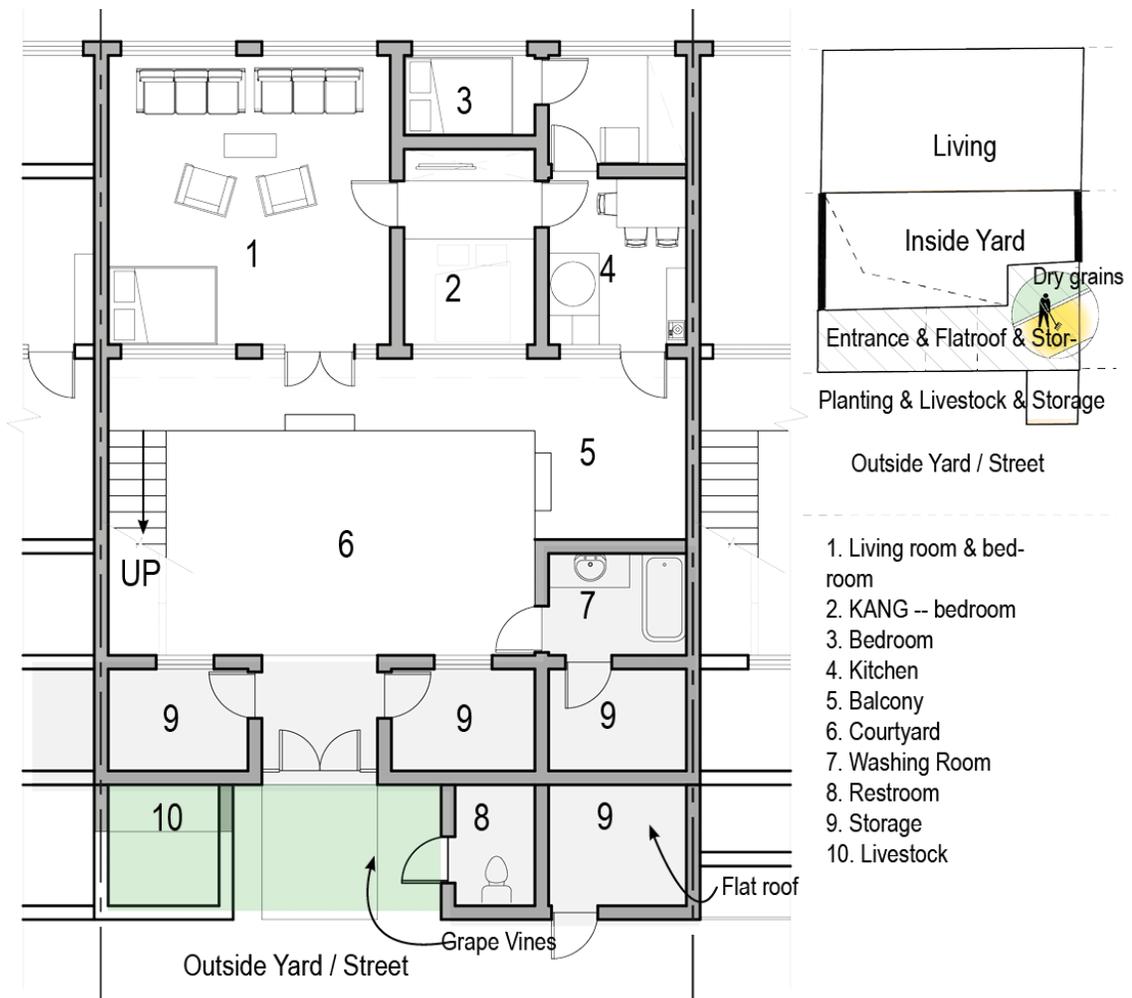


Figure 61 Typical Plan of the Type II

From street to main house, the Type II building is layered as shown at the top right diagram of figure 61. The outside yard/street is an “outside yard” owned by

the family, but also a “street” for people passing by. The closer layer to the main house is kind of a freedom space for people. A family might choose the space for storage, livestock, planting or combinations of them. The plan layout for this “layer” allows large varieties in different houses. The grape vines above the space are lovely: they offer people grapes in autumn and shades together with cool breeze during hot summer days; they also act as a visual protection for people on the flat roof and a transitional element from public street to semi-private flat roof.

The flat roof with storage space under it creates an entrance corridor where people like to take a rest after farm work or after dinner watching the street and greeting people passing by occasionally. The corridor also could be an extra entertainment space or dining space for families during holidays when more spaces are needed. The traditional wood gate could not be ignored when it comes to entrance. It offers the family the flexibility to choose the level of privacy. As is shown in figure 65, when the gate is closed, the courtyard space becomes more private than when it’s open. The flat roof is an important and special space for the whole Type II house—I call it “spirit harbor”. It is mainly used for drying grains, such as wheat, corn and peanuts, and storing a small part of their own grains. Before fresh grains pouring onto it, people need to make sure the flat roof clean enough. The activities about food and cleanness happening on the flat roof leads to its specialty. Meanwhile, located higher than other spaces of the house, it is a “safe” harbor. The grape vines protect it from the street disturbance, but still allow people on the flat roof to watch the street. In addition, “home”—the main house—is just at the back of the flat roof space and more importantly, the flat roof has a distance from “home”.

This distance is just the right one: it's easy for people to reach "home" or not according to their needs. "Distance" is important to "spirit harbor" as well. For many occasions, people realize something more clearly when they keep a distance from them—no matter a distance in time or space. Meanwhile, the flat roof space is one where people can have interaction and communication with nature, such as sunshine, stars, rain and scenery. During spring and autumn evenings before sunset, I would like to lie on the flat roof watching the clouds "movie" and enjoying the heat of the flat roof resulting from the sun's whole day radiation. During hot summer nights, the flat roof is a cool entertainment space for the whole family. We always lie on it sharing some star stories and sometimes we watch television directly through the window from the flat roof. Usually neighbors will come by to chat at the time.

Coming closer to the family main house is the courtyard with shared walls with neighbors in two sides and a chair-height balcony—about 1 1/4 feet (400 mm) high with a large cellar under it to store Chinese cabbages. Neighbors often share their food, such as dumplings or fresh potatoes, simply by handing them over the shared gable walls, which is about 2 meter high. Courtyard is also a space for people to dry their washed clothes or sun quilts during winter days.

The most frequently used spaces in the main house are Kang space and kitchen. Compared to them, the living room is under used. Kang is a large multi-functional space. It is a bed firstly, usually heated. When the staff on it is moved, it could also be a place for a meal or entertainment, such as poker.

The activities I mentioned above are shown clearly in the following interaction-related figures 62 and 64.

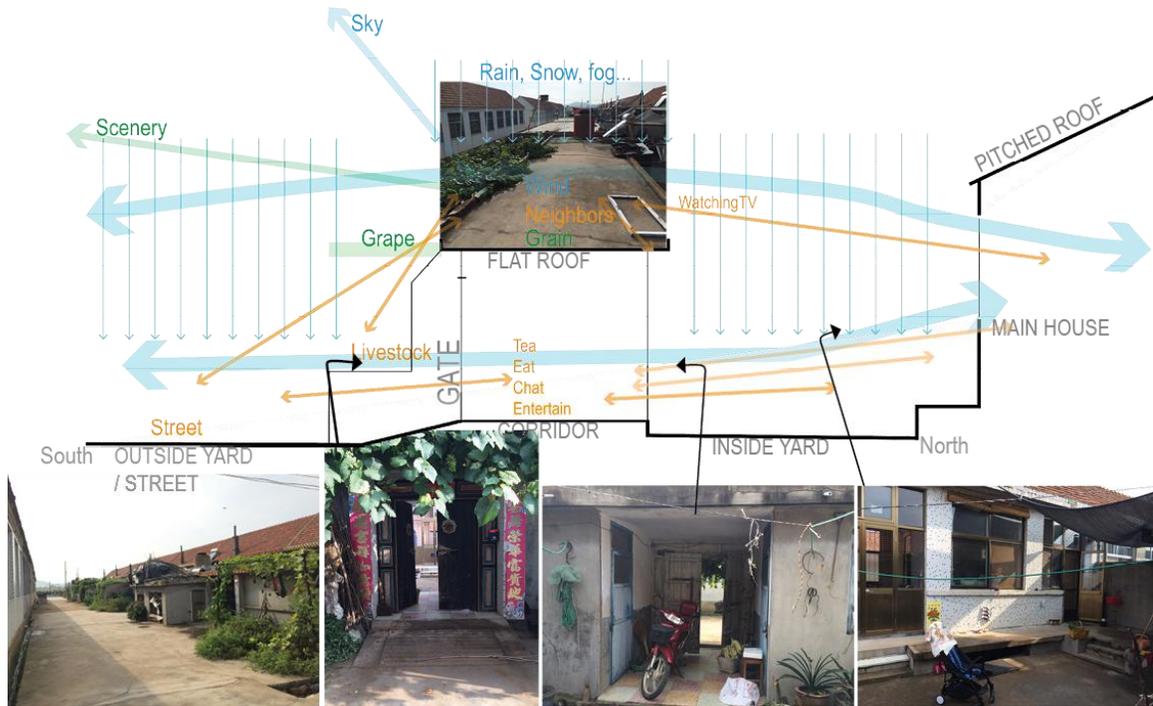


Figure 62 Interaction Activities

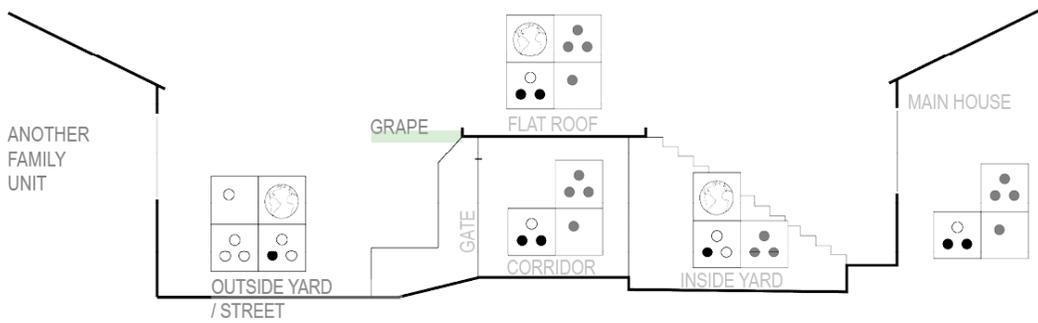


Figure 63 Intraction-1

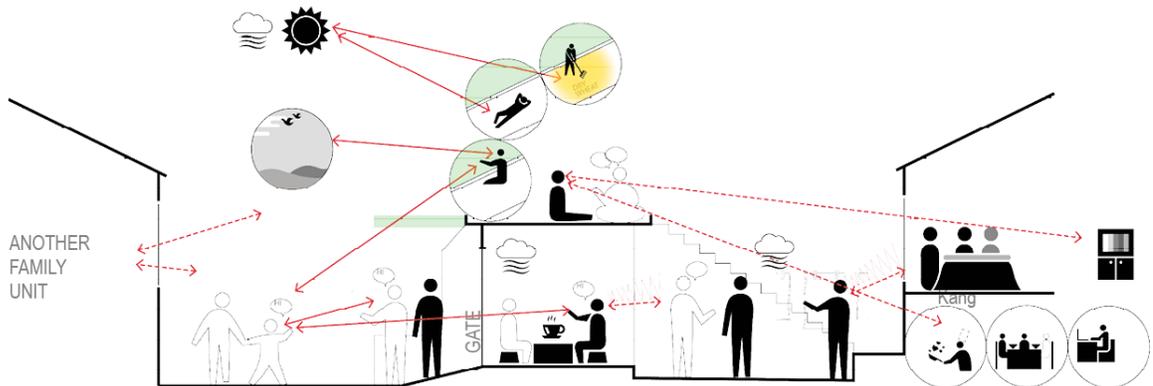


Figure 64 Interaction-2

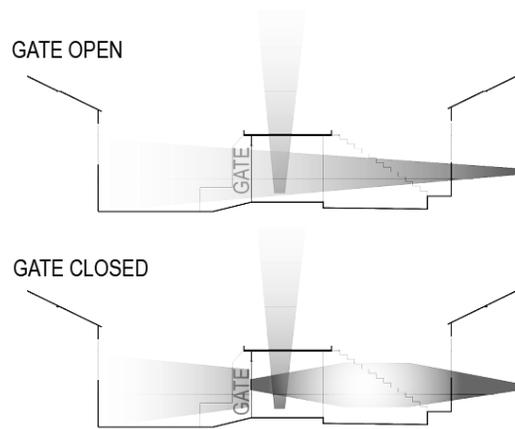


Figure 65 Privatness/Publicness Change

From the diagrams and words above, we can see the richness of integration happening in the Type II building, which has an inherent relationship with the level of privacy in one space (Figure 63) and the space organization of spaces (Figure 65). The variety of separated spaces' privacy level allows people's various needs and experiences in interaction. Meanwhile, the gradual transition from public to private space (Figure 65), makes the transition of interaction natural and make the spaces and people in them in harmony.

4.3 New Design

4.3.1 Introduction

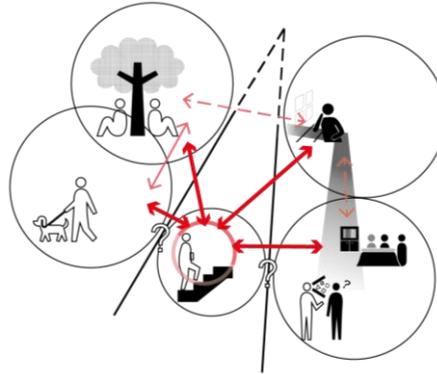


Figure 66 Goal

Having problems as I mentioned in 3.2, the circulation space needs to be changed for better interaction conditions in a building or community. In the new design, I intend to make the circulation space of a medium-rise building act as an interaction core to connect the public and private side (Figure 66). Resulting from that, the design uses stairs—the circulation space—as a leading element for the building’s “growth”. (Figure 67) Restricting the new design as a six-floor building according to local residential building situation in Rongcheng, one “Route” contains 10 family units, the alcove along the route in the building blocks means entrance corridor. The most direct way to combine these routes is forming a “wall” which can extend forever if possible (Figure 67). Instead of spreading the building freely, I bend the stair wrapping the family units in order to find out what kind of combination could be the smallest one, which I can use as a typical community/block for detailed design. I combine four bended “Route” and offset each routes to create “breathing space” for both the building and people. And finally

I get the typical block by removing some units in east and south sides for more sunshine. (Figure 67)

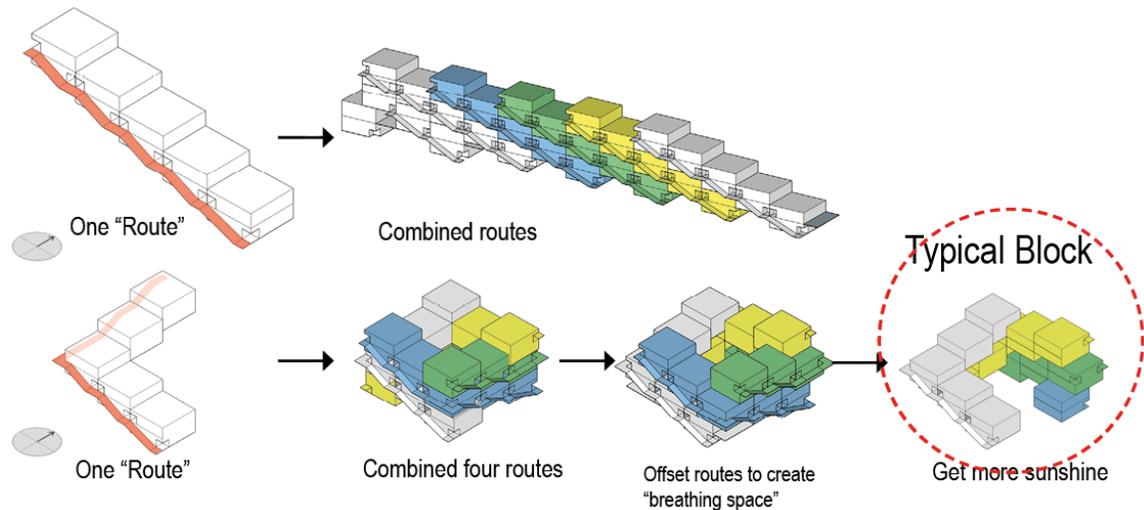


Figure 67 Typical Block

This stair-dominated logic could result in various flexible forms adapting different site situations. (Figure 68) In the typical block I chose, the stairs are all on the "outside" of the block buildings, in which I mean the semi-closed courtyard is inside. But in further design, the stairs could start from outside/inside and end inside/outside, which will create more possibilities and spaces with various functions. Nonetheless, working on a typical block is necessary, because it offers a solid base for my further studies.

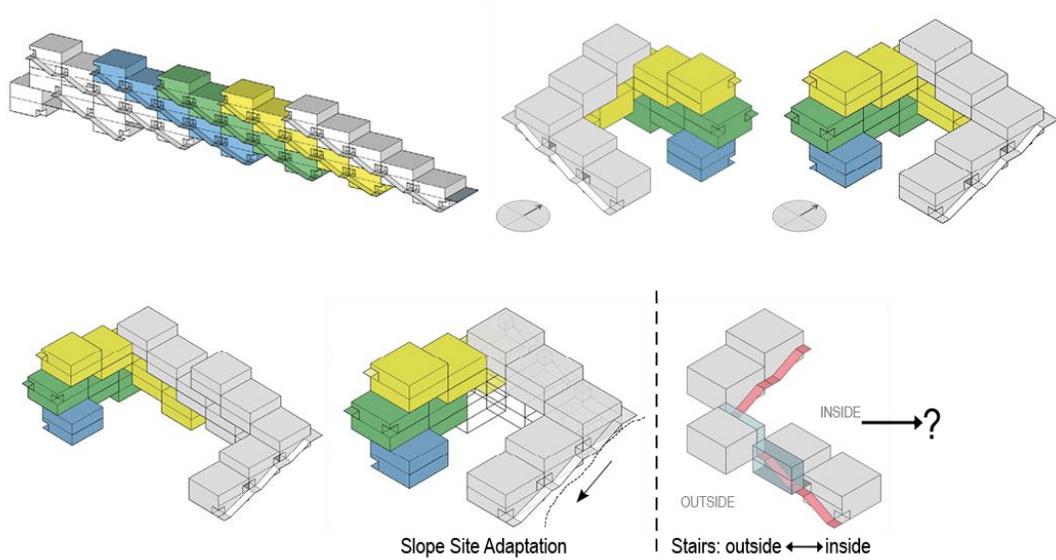


Figure 68 Flexibility

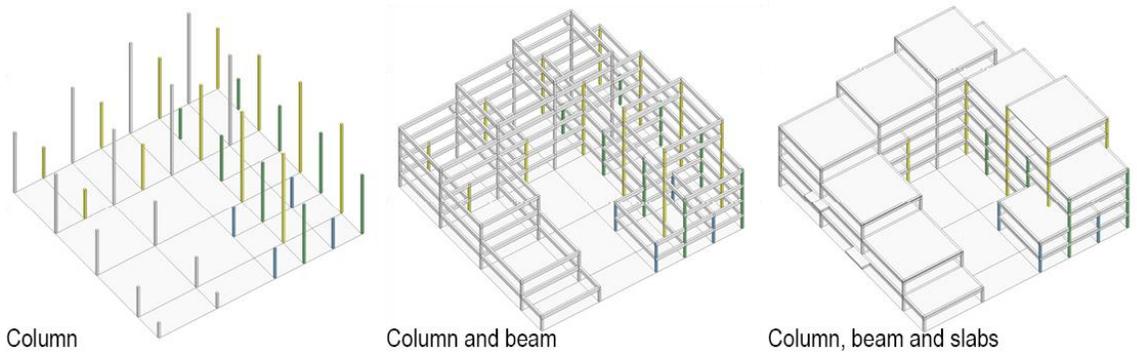


Figure 69 Structure

Except the building circulation logic, the flexibility also comes from the structure of the building—cast-in-place reinforced concrete column, beam and slab. This structure allows each family unit’s construction to happen separately. In this way the building could “grow” according to people’s needs. It also offers people the flexibility to design their own house interiors with non-load-bearing walls.

For the next part, I will talk about how this building logic is helpful for interaction’s happening.

4.3.2 Interaction in New Design

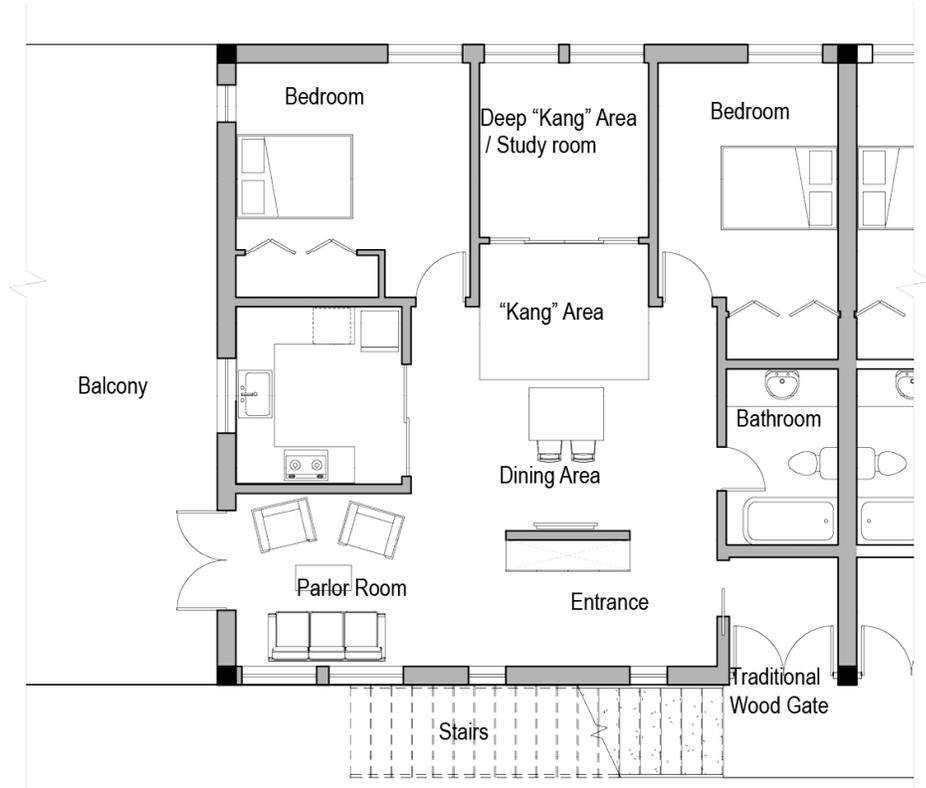


Figure 70 New design's Typical Plan

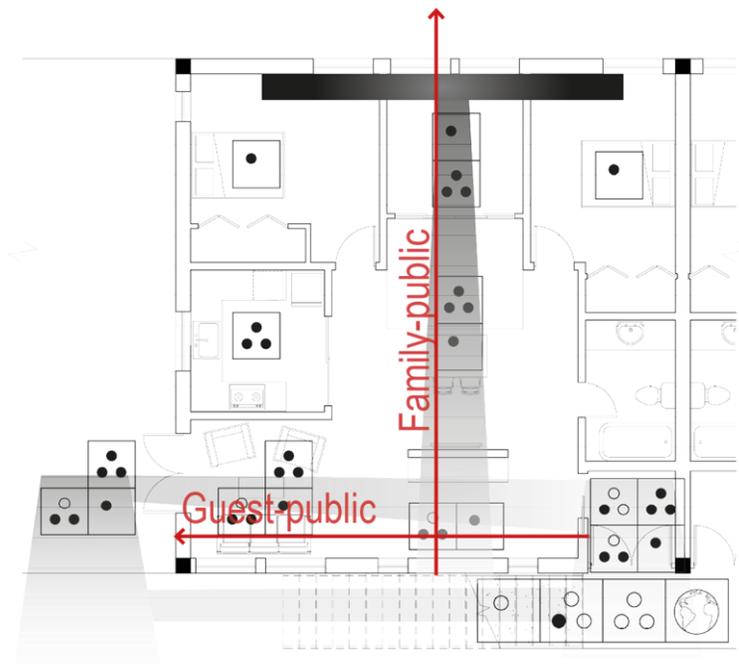


Figure 71 Privatness/Publicness

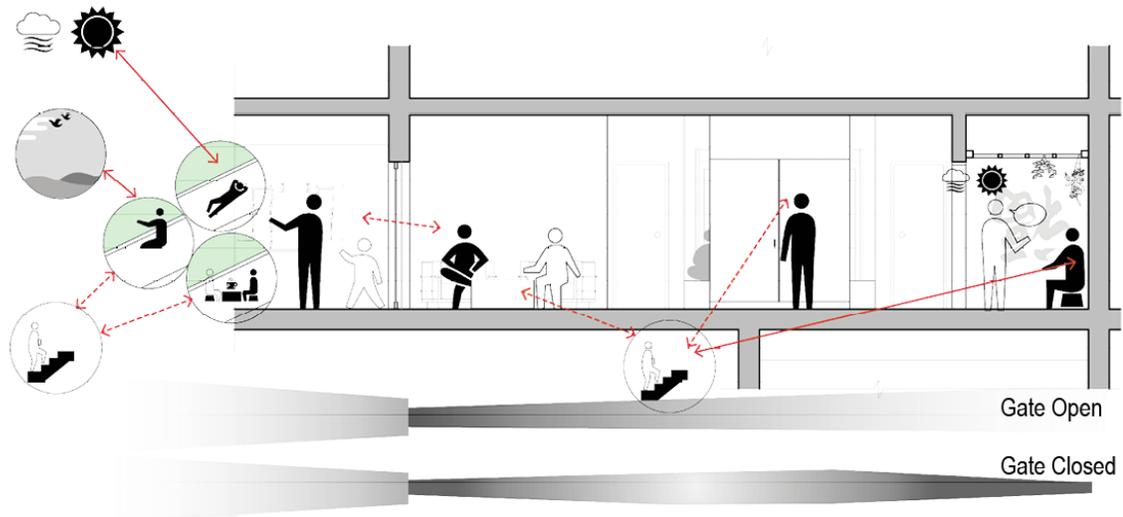


Figure 72 Guest-public

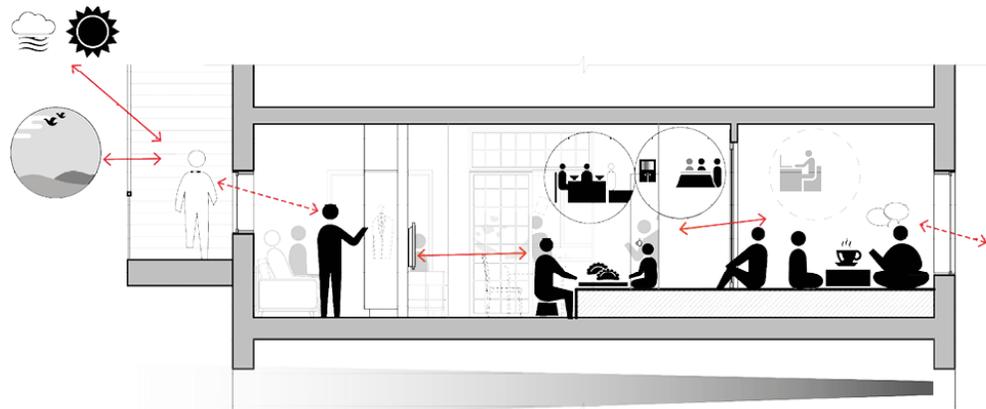


Figure 73 Family-public

Similar to the traditional Type II building, the new design building is layered as well. (Figure 71) From the entrance to the parlor room, then to the shared balcony with neighbor, the privacy of the spaces increases or increases first, then decreases according to how the neighbors share the balcony. I call this line the Guest-public line, which is mainly used for welcoming visitors acting as a transitional belt between private and public sides. Vertical to the Guest-public line is the Family-public line, a line mainly for family activities including dining, cooking, entertainment, etc. From the stairs to the other side, the space privacy is gradually increased. The most private spaces are the bedrooms.

The stairs in the new design function similarly to the “outside yard/street” in the Typical II building. They both are circulation spaces offering people opportunities to pass by and experience different families. (Figure 74) There are no boring emotions in my memory when I go through such kinds of streets in villages. I was always curious about what the spring couplets on the gates say. Plants, such as grape vines, growing along the ropes, which connect the handrail and steel skeleton rain canopy, can shelter the south and west stair spaces from strong sunlight. In addition, the steel skeleton canopy could work as an extra place for hanging wet clothes in winter when the plants are gone and sunlight is not strong. The disordered clothes in stair’s order create an exhibition of life without damage to the whole building’s appearance. The plants or the clothes could offer visual protections for people on the balcony as well. Also along the stairs, the privacy level of the interior spaces changes because of the windows’ relative locations to the stairs. The red areas in figure 75 are the units’ parlor room window areas. For people inside it is easy to reach the outside street or stair, but people on the street or stair cannot reach the inside visually. This characteristic makes the parlor room a “spirit harbor” when there are no visitors. Pulley block & track might be able to be installed along the stairs if people need to lift their grain to the balconies.



Stair & Entrance

Figure 74 Stair & Entrance

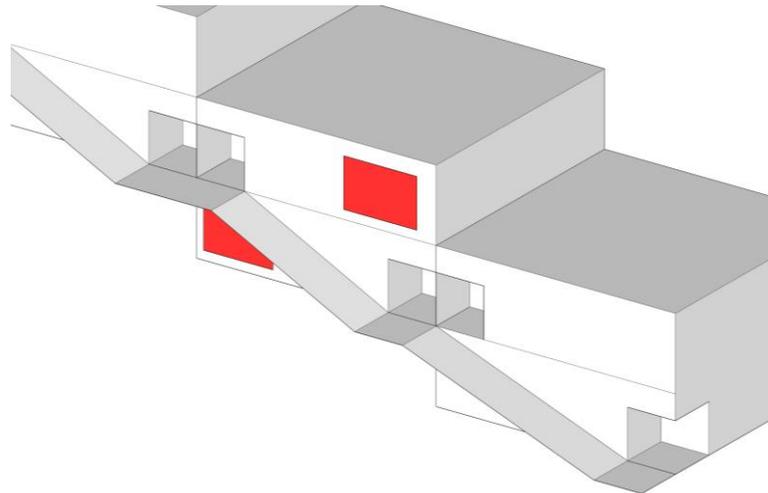


Figure 75 Diagram

I used a traditional wood gate for the entrance. One important reason for that is a culture-related activity. For the Spring Festival, the most important holiday for Chinese, the first thing when people get up on Jan. 1st of Lunar calendar is to stick Spring Couplet to the gate or positions aside the gate. Carrying Chinese people's hope for the coming whole year, Spring Couplet should be settled in a nice place. When entering the gate, a wall for Chinese painting or calligraphy faces the visitor. It is a tradition for many areas in China, including Rongcheng to write, draw or paint something on walls to show people's beliefs. After experiencing traditional Type II buildings, the height I choose for the entrance hall in the new design is about 2 meters, which is a height encouraging people to sit down in the space. The small scale of the entrance hall aims to create closer spaces for people's communication. The space can also work as a transitional space between dirtiness and cleanness by offering a mud wiping mat, especially for farmers. In addition, taking a rest, entertainment, chatting with friends, etc. can happen in this space as well.

In the family-public area, the most important program is dining and cooking—food is the most important shared public element by family members, occupying an important part in Chinese culture. There is an interesting sentence on the internet—Chinese people say: you eat for living; we live for eating. There is a fact that every traditional festivals in law when people don't need to work, has its own specific food. So families gathering is about having great food in effect. Kang as a multifunctional furniture / structure is much loved by people. Currently in Rongcheng, the Korean Kang, which uses electricity to heat the Kang, or tatami mainly for more storage space, have been used widely in city buildings. (Figure 76)

The outside Kang area shown in the typical plan (Figure 70) can be used for making food and family-entertainment. With the door closed, the deep Kang area can be used as a study room or bedroom.



Figure 76 (Source: Google Image)

The neighbor-shared balcony is for drying clothes and storage grains. The grain drying is set on the ground level, and people might be able to use a new machine for it with a mechanical engineer' help. As to the way two neighbors share their balcony, I would like to leave the issue to be solved by the habitants. People know what method their neighbors prefer with communication and interaction, in which process, understanding for the others' life happens.

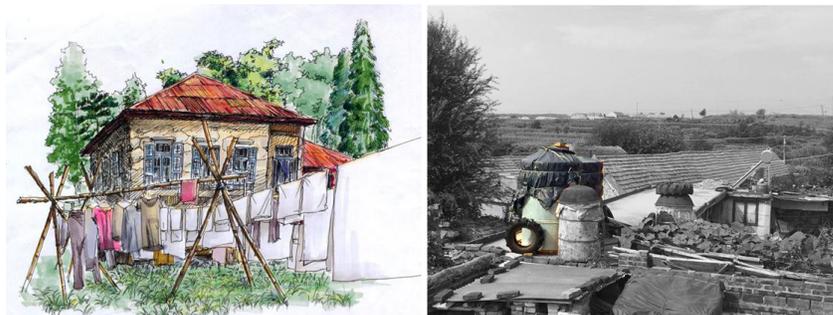


Figure 77 Photo

4.3.3 Further Introduction



Figure 78 Site Plan

The typical plan is arranged in the typical building block with small adjustments. Except for ground level, as is shown in figure 79, from outside to inside, the privacy increases. Because the activities in the center yard might disturb the spaces close to it, I flip and rotate the ground-level typical plan making the bedroom and study room side (private side) face outwards with a fence-enclosed

yard to ensure enough privacy. In addition, the building at the northeast corner is changed to a service center for the block, offering space for community entertainments, such as Majiang, mail box and facility storage, etc. The central yard area can be used for drying grains during harvest seasons, and dancing during everyday evenings after dinner. Plaza dancing, a popular public activity in China mainly by retired people, is starting to also appeal to younger people. (Figure 85)

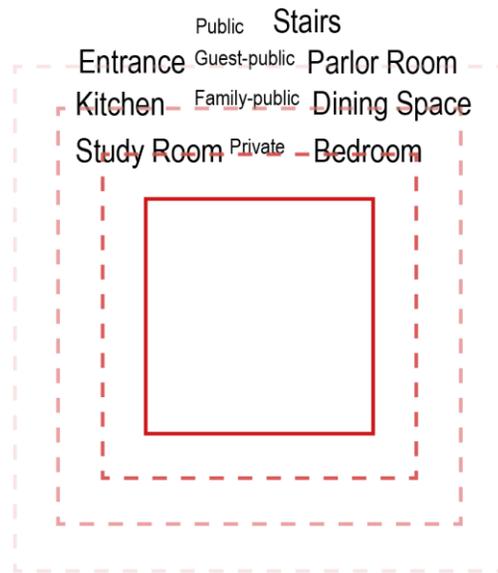


Figure 79 Building Layout Diagram



Figure 80 Second Floor Plan



Figure 81 Third Floor Plan



Figure 82 Fourth Floor Plan



Figure 83 Fifth Floor Plan



Figure 84 Sixth Floor Plan



Figure 85 (Source: Google Image except for the last one)



Figure 86 Rendering Image



Figure 87 Rendering image



Figure 88 Rendering Image



Figure 89 East Elevation



Figure 90 South Elevation

CHAPTER 5

SUMMARY

Although my thesis design is far from perfect, for me it is a perfect beginning of further study. Before this Thesis, I had no choice but to feel sad when I heard or saw any sad news in China, such as the drastic conflicts over the demolition of an old village. An individual's strength feels too weak in face of the complexity of this society. However, through this Thesis process, by studying a specific area's history and current situation deeply, I found that: first, I was able to develop a methodology to find out the key and essential elements of community more easily, which decided the direction of my design; second, just as one person can reflect the humanity of the whole human family, the problems in my hometown Rongcheng, reflect more or less the problems in the whole China and even the whole world in relation to the lack of interaction inside city buildings. By deeply studying one specific topic, I started to see the possibilities for dealing with some other problems at the same time.

This thesis lets me see how architecture can work to make a better world and what an architect can do in this process. In addition, my thesis design which offers a theoretical approach to the plan of a new type of home and community within a potentially large scale apartment building, offers me solid base to bring this approach to potential specific design opportunities in the future.

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