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I, Xinyuan Cao, hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture.

It is entitled:
Renovation of Denggao Village

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Abstract

Nowadays, in Chinese rural area, the rapid loss of young adults labor and recessionary economy make the old house couldn’t obtain update and maintenance, which then declined and became dilapidated. In the face of the serious deficiency of traditional Chinese architectural culture, protection, inheritance and recreation of traditional culture has become an unavoidable reality in our architectural creation. The project is trying to propose a future of protecting the architecture in Chinese rural area. Tourism industry, which could bring the economic survival, would be one of the solutions. I’m proposing a visitor center and a hotel program into the village. Those buildings are all rehabilitated from the old ones, which could not only maintain the cultural identity, but also bring in new functions.
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Part I
Introduction
Background
Economic survival
Cultural Identities
In my memory, I grew up in Denggao village. My Grandparents had been living in this village where had more than 800 years history and retained buildings of Ming and Qing Dynasties. In my childhood, I often played in the village. I loved to shuttle back and forth in old buildings, especially Seven-yard Ancestral Temple (people use this place to spring for something in old days), where was my favorite place. I remembered it was a sunny afternoon, my neighbors was holding a wedding and served for the whole village. My companions and I played hide-and-seek while laughing and running. I was running through the courtyard which packed with tables, passing through the crowd who was celebrating the couple. Then I came to the greenroom of stage and saw a lot of gorgeous costumes. I was so fond of those costumes that I took a suit of them and changed the costume at the corner secretly. In order to avoid companions, I came to the foreground accidentally. Under emergency situations, I struck a pose on the stage with a tone and gained a sure-fire splash from the audience. The plain people and living breath left a deep impression for me.

Two years ago, I went back to visit my grandma in the village, but I saw the old house was wasted and the stage was taken down into fragments. The ancestral temple was covered in weeds, and a few ugly concrete buildings raised straight from the ground. I was deeply saddened. In my memory, the exactly upright white and gray tiles walls, vermeil pillars and cocked corners, painted pavilions in the pillar, wood carve patterns of doors and windows with skilled craftsmanship, all those had been desolated. Standing in front of the stage, the prosperous scene then seemed as if in my sight, the applause from adults appeared to reverberate in the ears.
Denggao village’s downfall is not merely an individual case, high speed development of urbanization has made a lot of villages face the same problem. The rapid loss of young adults labor and recessionary economy, the old house couldn’t obtain update and maintenance, then it declined and became dilapidated. In the face of the serious deficiency of traditional Chinese architectural culture, protection, inheritance and recreation of traditional culture has become an unavoidable reality in our architectural creation.

In China, join the army; enter a school and out-migration for work has dried the vitality of rural areas. Effectives have tried their best to move into the city, remaining people are all old and sick. Few people come back from outside, there are only at-home wives, left-behind children, and empty-nest elderly in the village. This phenomenon is ubiquitous in most Chinese rural areas. From 2000 to 2010, the number of China’s natural villages dwindled to 2.7 million from 3.6 million. It is no doubt the “contribution” of urbanization. But the process is very cruel, no one can deal with old people’s burial; the education of children is no longer ensured, and all these are covered by flashy data.

China has a very early advanced urban civilization, and also created the world’s top four great inventions, but China’s social basis is still local native. The land cannot move; farmers rely on lands; fixed withdraw lands have formed agriculture civilization. However, the dependence of the reform and opening-up policy makes Chinese rural social infrastructure happened a radical change. The contemporary scholar He Xuefeng summarized it “New Rural China”. But problems during transition period from rural China to urban China are new rural China problems. Those villages which experienced changes will meet irreversible damages.

As is said above, rural areas also remain a lot of civilization in China, such as social civilization and construction civilization. If we abandon rural areas, we’ll not only lose land and farmers, but also China’s foundation culture. Most of the existing rural areas are multiplied villages from Ming and Qing Dynasties, which remained local and era features building community. A while ago there was an abandoned village emerged in Zhejiang province, which was famous for full covered vegetation on the roof of the house and was jokingly referred to green building. However, the green actually covers our history and culture. Aiming at new rural china’s present situation, maintenance and protection, update rural area is very imperative.

Rural traditional settlements are facing the following problems: one is architectural age-old and damage of material, the buildings have past service life. Most of villages in China are over 100-year-old, village form is constructed according to terrain, the styles of buildings are derived from the weather, and the structure of buildings comes from the most convenient materials. Style of remote villages are much different from central area, but most houses are built with rammed earth, bricks, stones, wood and others.
Although the wisdom of ancient people can greatly maintain the buildings, for example, the cornice of roof obstructs rain’s violation of the wall, but the passing of time causes corruption of materials, especially wooden buildings. Many buildings in wood construction are still in use, but they already have a lot of hidden dangers. The second is the loss of strong labor, the buildings have no maintenance or usefulness so that become run-down. In our modern life, the contact between people is dominated by trade. But in rural China, it still maintained mutual cooperation mechanism formed thousands of years. People call it “partnership”. Partnership is constituted by one or some villages, according to cooperative principle, everyone in the village will bear the responsibility and fulfill their obligations.

Each individual of “partnership” can also get help from everyone. But modern social changes make the system in old times face shock and challenges, combined with the loss of young adults and the change of concept, the mutual help form is no longer popular. Thus matters such as transformation of housing is more and more with profit. The third is architectural pattern in old times does not meet the new life mode after the reform and opening-up, which can cause structural using functions fall behind. Ancient buildings are often use wing-room as the basic unit, mostly being a square plane. However, with the development of era, electrical equipment is used in rural areas, the pattern of home furnishings also need to change accordingly.

At the moment, narrow rectangular houses cannot meet people’s daily requirements without design. Of course the biggest problem is underdeveloped rural economy causes a huge difference between rural living quality and urban areas, this is the root cause of rural problems. On one hand, it is rapid development of urban areas; on the other hand, constantly suspension of rural areas, the city constitutes a strong appeal to rural areas. During process of rural people transfer to urban areas, the reality that city is better than village will make the society form a worship of thought and consciousness for city. The situation that discrimination against rural, social gap between rich and poor is increasingly enlarged; and population imbalance will all cause problems to a vicious circle.
Nowadays, I think the most favorable solution is the tourism industry, to promote the economic development of some rural areas. The rapid development of urbanization leads to many urban problems which have not been solved; people are enjoying the convenience brought by the city, but also are experiencing the pain caused by urbanization at the same time. In Beijing, for example, the haze has become an issue on which the global community is currently focusing, the weather not only affects people's quality of life, but also causes great harm to the body. At the same time, the heavy traffic, the lack of municipal resources and high prices are challenging the tolerance of people in the city every day. Maybe because the root of Chinese is put down in rural area, so at weekends and on holidays, people have formed a kind of "anti-urbanization" tourism project, called "farm stay": people retreat to the nearby countryside to spend a vacation on hiking, fishing, eating farmhouse dishes and so on to avoid the hustle and bustle of the city.

I have been to my company’s annual meeting held in a rural village at the foot of the Great Wall. The reason why the company chose this place was that there was an American architect who transformed the rural area to a hotel. The transformation project was very delicate, not only preserved the ancient architectural style of the north, but also acquired the elements of modern life. We lived in the house, sat beside the fireplace, leaned against the old wall, looked at the stars on the top of the Great Wall through French window at night, which became a very unforgettable experience.
Therefore, these cities surrounding by the rural areas have a very large potential; for us, the development of the tourism industry is not just driving the economy, but also seeing the other possibilities behind the economy. To develop rural areas needs to develop the rural economy, the economic development will absorb the labor force of which are children of the empty nest elderly, husbands of those left-behind women, fathers of those left-behind children. The reflow of labor force will not only help to develop economy, but also ensure the social harmony and peace. At the same time, the development of the tourism industry can drive the development of the rural handicraft industry and the small manufacturing industry; the backwardness of the rural areas is due to the occlusion, and the rapid flow of population is the best way to open the door of the countryside. Moreover, for the buildings, we repair and protect them, to put forward ideas for the future construction of the countryside, controlling the future development direction of the building within the controllable range. At the same time, we hope to arise social concern through attracting tourists. The improvement of social concern will be counterproductive to the rural construction, stimulate thinking, attract investment, and play a win-win effect to the protection of rural construction.

However, the renovation of a village is neither just simple restoration nor reconstruction, it is more like rehabilitation. The architecture of China is as old as Chinese civilization. From every source of information—literary, graphic, exemplary—there is strong evidence testifying to the fact that the Chinese have always enjoyed an indigenous system of construction that has retained its principal characteristics from prehistoric times to the present day. Over the vast area from Chinese Turkistan to Japan, from Manchuria to the northern half of French Indochina, the same system of construction is prevalent; and this was the area of Chinese cultural influence. That this system of construction could perpetuate itself for more than four thousand years over such a vast territory and still remain a living architecture, retaining its principal characteristics in spite of repeated foreign invasions—military, intellectual, and spiritual—is a phenomenon comparable only to the continuity of the civilization of which it is an integral part.

Throughout the 20th Century, Western-trained Chinese architects have attempted to combine traditional Chinese designs into modern architecture (usually government), with only limited success. Moreover, the pressure for urban development throughout contemporary Chinarequired higher speed of construction and higher floor area ratio, which means that in the great cities the demand for traditional Chinese buildings, which are normally less than 3 levels, has declined in favor of modern architecture. However, the traditional skills of Chinese architecture, including major and minor carpentry, masonry, and stonemasonry, are still applied to the construction of vernacular architecture in the vast rural area in China.
Part II
Good, Bad, Ugly
Traditions
Continuation of Traditional Architecture
Western Precedent
Local Approach
TRADITIONAL ARCHITECTURE

1. Traditional architecture and time

In terms of architecture, the westerners lengthen the time dimension, and what they value is to create a permanent environment, while the Chinese focus on building the contemporary world. In China, the traditional view is that the updating of architectures will never end, because the later generations may not be satisfied with the environment their ancestors created, so the old architectures are always superseded by the new ones; for example, the ancient emperors often rebuilt their new palaces. The urban and rural construction is always in a process of updating, and the human changes form generation to generation over the time, and the architectures, as actual needs at that time, are also updated, which is the practical idea. So you will find that there is no construction site in the Chinese architectural history that can build for more than decades.

2. Traditional architecture and grand unified thought

China’s feudal society was based on the Confucian thoughts, and the comments on architecture were also gradually used as the ideological basis of design. In the "a hundred schools contend" era, there used to be the debate about the architecture, and one of the most important contradictions was about the luxury and frugality. The Confucian philosophy and theory not only bring the architecture into a pattern, but also limit the development of Chinese architecture in all aspects, such as the idea of advocating frugality.

3. Traditional architecture and wood

The wood has short service life and can be easily influenced by the environment, but why could it be the main building material in ancient times? The natural environment and other objective conditions are not the fundamental cause for the development of wood structure, and the forest is not everywhere in China; neither the social system nor productivity is the fundamental cause, because the ancient rulers also had the great mobilizing power; in addition, the arch appeared earlier in China than the west, indicating that Chinese had known to use the masonry structure very early.

The real reason is that the wood is always regarded as the most reasonable construction mode, a technical standard after choice and test. Technically, the wood structure breaks through the limitation that it was not suitable for building large buildings in the past; at the same time, the wood structure is more flexible and freer without the load bearing wall in the ancient western architectures. In terms of the construction time, the wood structure needs shorter time. In terms of values, the wood structure also conforms to the traditional values, that is, serve the contemporary era with frugality.
4. Character and standardization of traditional architecture

The ancient Chinese architectures lack the "character", because there was no era pursuing character in Chinese history. Early in the history, the residence was not much different from houses with other functions, because buildings of any nature were developed from residence.

China's ancient architectural design was not classified by the application, but the big and small size.

In ancient China, the planar configuration and facade shape of any kind of buildings were similar without obvious change due to the design standardization. Under China's traditional design idea, all buildings, cars and sacrificial vessels adopted the all-purpose design. The all-purpose design, as the basis of standardization, kept it flexible and adapt to any purpose. And any kinds of Chinese architecture represented different characters through the "decoration", and showed the purpose from different layouts.

7. Extended mode of traditional architectures

The ancient west pursued the spatial extension, while the Chinese pursued the plane extension. The high architectures represented the authority in the ancient west, while they were used to take people high for life or work. Under the growing population and decrease of available ground, and the architectures only served the contemporary values, such spatial extension mode led to the demolition and new construction lacking the protection consciousness.
CONTINUATION OF TRADITIONAL ARCHITECTURE

(1) Carrying body: carrier

Wang Shu said: "the tradition was carried by people, and inherited by the way of life."

There was seldom research on ancient architecture in ancient times, as already mentioned before. There were few historians under the regime in past dynasties that thought and explained the history independently.

(2) Carrying object: the carried – ancient architecture

In the absence of protection consciousness, with the historical development, the ancient architectures were lost and seriously damaged by the modern wars and removed for nearly 20 year; as a result, there were not much ancient architecture left.

(3) Carrying environment: the social atmosphere and citizen consciousness

Zaha Hattie said: "China is an incredible piece of white paper that can be used for innovation".

But why is the bid-winning National Grand Theater of China in Beijing exotic? Why are there exaggerating commercial architecture and stiff pseudo-classic architecture?

These can reflect from different perspectives that today's society lacks the understanding of the tradition and present. And we are not confident of our own culture, in the words of Wang Shu, "when we are a little heartless about the tradition collapse nowadays, we enjoy the regional culture and have a basic belief of self-esteem and self-respect. Do you love yourself? If you don't love yourself and copy other people, this is not the self-esteem or self-respect. "As the user of architecture, the public is often outside the architecture.

Wang Weiren says "the modern means that citizens have the right to explain themselves. The so-called modern does not depend on its final form, but the impact, exploration, struggle and debate at all levels and every field of society, reaching consensus finally. That out of the process can really cover the deep emotion and real collective memory of this society.

Zhu Tao said: "is there a ‘modern’ that comes from the soil beneath the feet and respect itself, even the most humble memory, and can be explained and defined with the language that the poorest group is able to understand?"

"We were born in tradition and transforming the traditional. The tradition is us!" In the realistic environment, the population expansion, ecological and energy crisis objectively require us to inherit the traditional regional and place spirit in a modern way, so as to make it adapt to the changing world continuously.
Part III
Meaningful Intervention

Site Introduction
Architecture Conditions
Classification criteria
Design
SITE INTRODUCTION

Denggao village is under the jurisdiction of Pujiang county, belongs to Xianhua Street, located at the east side of National AAAA level Xianhuashan Scenic Spot. The village area is about 3 square kilometers having 180 households and 550 villagers and beginning from Qingyuan period of the Southern Song Dynasty. For more than 800 years, the little-known small mountain village, although has experienced the vicissitudes of life, fire disasters, but it still remains with the huge and wide geographical environment, clean and beautiful natural scenery, ancient and exquisite cultural relics, uncanny workmanship of the immortal relics, and secretive and bizarre anecdotes.

The location and layout of Denggao village reflect the geomancy planning layout theory. Based on the geographical features of huge terrain, hilly and wide mountain, fresh air and abundant underground water, etc., pay full attention to the integrity of the environment. The village was carefully designed and planned in accordance with the "Huangdi Zhaijing" in which advocates "Taking the situation as body, taking the spring water as bloodline, taking the land
as skin, taking the grass as hair, taking the house as clothes and taking the
door as hat.” The village is adjacent to the mountains in the north, which is
built according to the terrain with the distinctive space layout and function.
The overall layout is boat-shaped with south-north direction, but the north is
higher. With Zhao ancestral hall “Wu Jin” as the central axis extending to the
north and South, thus form the “stem” and “stern”. The “bilge” is the “Wu Jin”
ancestral hall and its nearby dwellings. All of them are hiding in the mountains,
built with patios or radiant halls and internal connections of the corridors. In
rainy days, walk from the "stem" to the "stern", without umbrellas, and without
shoes touching the water, which is very convenient. On the east ridge of the
“bilge”, there used to be encircled quassia ancient trees, which are just like the
mast. The "stem" is faced with Denggao valley where has a viewing platform
of more than 1,000 square meters, standing there and looking to the south.
You can see the beautiful scenery of Pujiang county through the narrow valley
mouth. Sometimes the valley is covered with mist and clouds. Overlooking the
Denggao ancient village, it looks like a boat parking on the mountain and sailing
away.

Most roads in the village are footpaths, there is a vehicle lane connected with
village road and another three ancient road entrances. From the existing street
road pattern analysis, it is found that the traffic of ancestral hall area is complex
and changeable, the length of streets and alleys are relatively short, showing
a network structure. The area around the core area, where the road structure
is relatively single, street length is relatively long, showing vertical structure. It
is supposed that the road structure of ancestral hall area was preserved from
the original village; the surrounding streets and alleys were slowly developed
and formed later. The designs should retain the original street road structure, to
leave visitors with different feelings about the lanes.
Analysis of village roads

Analyze the intersections of main road, and it is found that most are junctions of three roads, and some are junctions of four or five roads. The intersections with circle should be paid attention in the planning and design.

The main intersections need further interface analysis. (Vacant)

The landscape or most greenery is concentrated on the east side of road, and the west side of road is mainly the architectural interface with little and scattered greening landscape.

Considering 1: the roads need the orderly space layout; 2: the inhibition before rise can make the landscape more amazing. So it is suggested 1. The architectural interface within the dotted line can fabricate its architectural interface again; 2. The large green area or landscape area can be set at the west side of road.

1. In the northeast of main roads are the cement roads. Although the original road materials are unknown, it can be seen that residents often use this road. In the south side is the blue flagstone, originally called as "bystreet", the busiest road. In the west side are mostly the earth roads, and some are blue flagstone roads. Can we infer that the roads in the west side used to be the blue flagstone roads?

2. The main roads are high in the north and south end, and the north side is higher than the south side, showing the ship type.

3. The road is about 4-5m wide in the northeast, about 1.5-2m wide in the south, and about 2-3m in the west.

4. The main roads are the higher-grade roads in the village; maintain and repair the frequently-used roads and the surrounding scenery after planning.
The relative height of each area is not the same with different building interval and direction, and the daylighting situation \ scenery outside the window is also different.

1. The building elevation is mostly the same with small building interval and large building density. The light is mainly from the courtyard, so it is dark inside. Feel the sky.

2. Face the east with higher ground, able to see the sunrise and roof scenery in area on the second floor; the sunshine duration is shorter.

3. Face the southeast with large building interval and good daylighting; distributed on the ladder terrain, and able to see Beacon Hill on the second floor.

4. Able to see Beacon Hill, distributed dispersedly with good daylighting; located in the traffic entrances and exits with poor privacy.

5. Convenient traffic

6. Good privacy, very quiet; poor viewing.

7. The running water landscape in front of the gate, livelier.

8. Good daylighting, located in the wind gap and traffic entrances and exits with poor privacy; the main scenery is mainly the valley in the southeast.
ARCHITECTURE CONDITIONS:

The main three structure types:
1. Wood Frame
2. Taipa + Wood
3. Brick

Construction Sequence: Wood → Taipa + Wood → Brick.

The development of the three kinds of structures can be broadly seen in the development of the village.

There are axes shows the development along the ancestral hall and 13 bays house.
Reservation, restoration and rehabilitation. It can be very good to show the development of the construction technology of village buildings.
CLASSIFICATION CRITERIA

Dangerous: enclosure wall has been damaged or abandoned as a storage room, and has been uninhabited.
Better: the building envelope is intact, and no one lives.
Good: the building envelope is in good condition, and there are people living in
Important: built in the Ming and Qing Dynasties, showing early architectural appearance, as well. More important: the residential building in the near modern times, multi-show courtyard variant form. General and important: late modern architecture, part of the concrete beam slab structure. General: nearly twenty years of construction, is a typical characteristic of multilayer, brick.
Building Groups:

The red area is the core area of traditional architectural building in Denggao village. Most of the buildings are built on the ground with patios, using brick materials. Buildings in this area are relatively dense, leading to narrow street space. Most of the buildings in this area are two story buildings, some newly built buildings have only one layer, some recently rebuilt and reconstructed local red brick buildings have three layers.

Blue and yellow areas are the late construction areas, the buildings are located parallel to the contour lines, have determinant features, using loess materials. Buildings in this area are relatively sparse, leading to open street space. Most of the buildings in this area are two story buildings. Some newly built buildings have only one layer and some recently built buildings are multistoried.

Yellow area is located in the northeast of the entire base, toward the southeast, in the outlet location, some of the buildings on the east side have some trees to keep out the wind. This area is connected with the roads which is in the direction of Lizhang and Yantou. This area has ancient tap water public open space, compared with the core area, this area is a little bit busier.

Blue area is located in the southwest of the entire base, with some of the buildings toward the east and the rest mainly toward the southeast side. This area is connected with the vehicle lane which is in the direction of Xianhuashan mountain and Pujian new district, on the east side of building 6 there is a village sign sketch at the village entrance: the hometown of Ma Liang.

The concentration of the rehabilitation will be Style, Constructability, and New functions.
The first site I selected is the thirteen-bays house. It is the most famous building in the village and has the best identities of culture and history. The reason to renovate this place is to better present it to the public rather than changing it. The major space of the building has been adjusted to a small museum and there will be a glazing shading added on the courtyard to protect the building from rain water. It is also close to the ancient water foundation which will be rehabilitate to hotels.
Site two: The old water fountain

1. The base is located in north of the village, an area of about 700 square meters. The base has a canal for the ancient oasis and 3 different functions pools. It is an important communication space for the village;
2. The north and south side are houses, the east side is open to a good view, and the west side is attached to the main road;
3. there is an open space extended to the north of the site, can be seen as the sunrise view spot, it should be considered in design.

The pond is not optimistic about the current state, and now it’s been only using as a daily wash, the pollution is serious.

A, look at the ancient buildings of the water source direction: two building walls and the distant ridge constitute a picture. Therefore the walls needed to be well designed, the right side of the road and the junction of the construction of a plant can optimize a screen.

B, see the sunrise direction: the building formed gap gives a good vision. According to the villagers said, before there are photographers came and shoot the sunrise, so the place can be seen as the sunrise view of attractions. At the same time the picture on the left side of the house provide a favorable view of the conditions of the building, telling the history of the ancient village.

C, see Huashan Mountain direction: the direction to observe the Xian Huashan Mountain is blocked by the two red brick building, onlya small part of the mountain can be seen in the gap. The two buildings are of strong heterogeneity. Should be redesigned.
The buildings around the ancient spring are built in recent years, which don’t match the cultural identities of the village. The site has undisturbed location and natural friendly condition. The rehabilitation of the spring to change these houses into hotels which support the tourism program of the village.
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