

Study on Environmental Protection Design of Traditional Dwellings in Northeast Shandong Province

—Taking Binzhou Residential Environment Design as an Example

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Abstract: Building a new socialist countryside is an important historic task in China's modernization process, Shandong is located in the developed area of China's coastal areas and has a unique residential environment. This study was analysed the importance of environmental construction in the northeast of Shandong province through the field research. Meanwhile, the regional art and culture of residents' environment construction in northeast of Shandong Province have been explored. The feasibility construction plan for the common development of environmental protection between new rural construction and characteristic residential building is analysed and researched for it. It has played a practical guiding role in the construction of new countryside in Shandong and even in the whole country.

1. Introduction

Building a new socialist countryside is an important decision by the Fifth Plenary Session of the 16th of the CPC had been proposed. It is a major historical mission for the party to proceed from the overall situation of the country's undertaking. Shandong is located in a relatively developed area in China, it has unique regional culture and can be used as a representative of new rural construction research in northeast of Shandong Province. China is a large agricultural country in nature, it has a long history of cultural and geographical vast and distinctive culture village area. Rural village is the main carrier of political, economic and cultural life of China, China's current rural issues and the new rural development as a major strategic issue for national development, it can recognize and interpret the situation in China from research in rural China that to seek the way for the future development of China.

As early as 1925, the academic community began to carry out the protection and take appropriate measures of ancient villages and the construction of a new rural village in the book "Village Life in South China - Familial Social Sciences", it based on a survey of family sociology in Fenghuang Village of Guangdong Province. Afterwards, in 1939, Mr. Fei Xiaotong^[1, 2] conducted an in-depth and comprehensive study of the village culture in "Jiangcun Economy - The Life of Chinese Farmers" and "Farmland China." This not only analyzed the driving force of social changes in China. And the basic institutional form of the traditional Chinese society was dissected. The investigation of the social anthropology field survey method by Mr. Fei Xiaotong was the first of its kind in China. At the same time, Professor Chen Zhihua, Lou Qingxi, and Li Qiuxiang of Tsinghua University are also the most representative of the studies in the field of rural architecture and residential areas. They passed the social economy, historical culture, and folk culture of ancient villages. Analysis and research were conducted to form the "village history" with the most academic research value^[3]. Based on the theoretical research of Professor Fei Xiaotong and Professor Chen Zhihua, this study takes the example of an ordinary village in northeast of Shandong Province for analysis, design, protection, transformation, and construction. The inheritance of village culture and the design and construction of a new rural village are featured. A feasible

construction plan for the common development of residential building environmental protection is studied.

2. The Outline and Characteristics Analysis of Traditional Residential Environment in Northeast Shandong Province

The northeast of Shandong Province includes Dongying, Binzhou, Dezhou and Liaocheng, and the land is flat, belonging to the northern Shandong plain and the hinterland of the Yellow River Delta. It is located in the lower reaches of the Yellow River. Under the influence of the natural environment, the architectural style of the area is simple. There are some elaborate and complicated decorations. Therefore, the traditional architecture of Binzhou shows its exquisite and beautiful in rustic simplicity. As the region that is deeply influenced by Confucianism, regardless of the level of the dwellings or the size of the buildings, they all show their inferiority and orderliness in the spatial structure, and they also contain Confucian school philosophies. Take the courtyard-centered inward-looking family compound courtyard and courtyard houses as an example. The rigorous and clear pattern that it constitutes reflects the feudal society's "orderly and long-term, internal and external differences". The villages are adjacent to each other in the spatial arrangement of house construction. The characteristics of the traditional residential environment in northeastern Shandong Province are a neighborhood-type lifestyle, namely, "distance is not as close as neighbors". Intensive residential forms and living spaces have brought the distance between residents closer, enabling residents to have better communication under the influence of spatial forms. The architectural features of Binzhou are mainly manifested in closedness, sturdiness, and the beauty of natural art. The closedness, as a form of traditional residential buildings, is closely related to the characteristics of the times and economic development. Affected by feudal thoughts and the psychological effects of traditional culture, the economic form of self-sufficiency in feudalism directly affects the impact of residents on buildings, resulting in a tall earth embryo. But this private courtyard building style gives people a sense of security, quietness and stability. Rugged, the stone, earth, brick, and wood that were used to build the house were carefully selected, leaving behind many old houses that have been passed down from generation to generation. Although it has survived hundreds of years of wind and rain erosion, it is still strong. The beauty of natural arts, as the original feature of residential areas in the northeast of Shandong province, is called the earth embryo house, also known as the adobe house. There are two main ways to build walls: one is using stone to make a corner, the other is using wood as a mold, and the mold is placed on the corner of the wall. The second is to use clay rows to make clay bricks, and most of the bricks have not been fired, and they have become brick walls. However, in the wall brushing materials, clay is generally selected to be mixed with rice straw to enhance the bending and shear resistance of the wall. The earth embryo houses have good insulation and heat insulation capabilities. They are cool in winter and cool in summer. They are most common in Binzhou. They are the best artificial buildings integrated with the environment. They have their own extraordinary architectural art forms and nature. Natural materials leave infinite imagination. The Binzhou earth embryo house is shown in Figure 1.



Figure 1. Binzhou earth embryo house

The residential buildings in Shandong, like Shandong people, give people a strong sense of security in castle style. The courtyard wall is towering, the gate top is high, the courtyard walls are closely linked with the houses, and the whole courtyard is solemn and solemn. The wall of the yard is generally thirty or forty centimeters thick, the roof is made of wavy mud tiles, grass mud under the mud tile, and the grass is mixed with mud. It has a good warmth retention effect. In order to resist the cold invasion, the windows are usually set small, and the position is relatively high.

3. Analysis on the Current Situation and Problems of the Traditional Dwelling Environment in the Northeast of Shandong Province

New rural construction as a major historical event in the process of China's modernization, the basic forms of its renovation in villages mainly include "the construction of new villages, the collation of hollow villages, the transformation of villages in cities, and the protection of historical and cultural villages". The data show that the land saved by village renovation can satisfy China. In the coming decades, non-agricultural construction will occupy the land. As the first batch of people who ate crabs after the reform and opening up, the northeast region of Shandong has been at the forefront of the ranks in the new countryside planning. However, the government's mandatory rural housing reform measures have brought many problems at the same time. In the process of the merger of some villages, some localities rushed to impose forced death orders on the peasants and harmed the interests of peasants. On the issue of resettlement, most places adopted the "one-pot" policy, making it difficult to live in family operations; some locality did not proceed from reality and changed the narrow lane, which was originally sufficient to meet the demand. Some rural villages have their own unique living environment and living characteristics. What they want is to follow the wishes of the farmers, earnestly consider the peasants, and provide the peasants what they really need. For the northeast region of Shandong, the author believes that the key to the construction of a new countryside is the perfect combination of the country, the family, and the people. That is to say, it is to find the new rural construction and the regional village culture and the new production methods. The key construction should be infrastructure construction. Looking back at the history of new rural construction in China, in the process of village reconstruction, most of them focus on the beautiful, clean appearance of the houses and the plans for future development, often neglecting the transformation and upgrading of infrastructure. To this end, it is necessary to achieve the combination of construction: First, pay attention to the integration with the urban infrastructure; second, pay attention to the combination of natural ecological environment construction. In the process of focusing on infrastructure construction, and to attach great importance to the protection of the ecological environment and the harmony between the village and the ecological environment, and truly realize the sustainable development of the village and the ecological environment.

With the continuous improvement of living standards, the concept of urban living has been continuously strengthened. In the 1990s, the earth embryo room of the main force of rural housing has quickly become history, gradually being overwhelmed by new types of housing. The earth embryo house not only has a rich regional culture in the northeast of Shandong Province, but also has a livelihood and folklore in the process of construction. At present, there is a dearth of relevant research on earth embryo house. From the current situation, the protection of this original ecological building must be highly valued in order to effectively save the regional characteristics of the building.

For the crazy development and construction in recent years, the contradiction between development and construction and environmental protection has become increasingly arduous. Natural wetlands have been declining. Industrial waste water and domestic waste water have been placed in an uncontrolled manner. Enterprises are arbitrarily occupying agricultural cultivated land or natural protection areas. Therefore, the ecological environment has become very fragile and more severe challenges. Due to lack of prevention and lack of scientific development concepts in the process of urbanization and new rural construction, land and landscape have been seriously damaged.

Looking at the problems existing in the current construction, it boils down to two points: First, the lack of investment in basic construction, for most rural areas, the infrastructure depends on the masses to solve; second, the lack of comprehensive system design in the construction process. Some units are perfunctory in taking over village planning. According to the current situation in the northeast region of Shandong Province, the author believes that the economic problems in the construction process can be balanced by the following suggestions. First of all, establishing an effective and guaranteed mechanism for the peasant masses' livelihood, such as setting up old-age insurance and resettlement insurance to solve the peasant masses after land acquisition. Secondly, the development of collective economy, such as the rational introduction of foreign-funded enterprises, to support the construction of infrastructure, maintenance of historical residential buildings, village welfare and other issues. At last, scientific and rational land planning, to achieve the intensive use of land, increase the economic output of the land.

4. Binzhou as an Example of Traditional Residential Landscape Protection and New Rural Housing Construction

There are two reasons for the selection of Binzhou as the research object. First, the author comes from the local rural area of Binzhou, and has a familiar and profound experience with Binzhou's rural environment and culture. Second, the focus of this study is on the commonness and universality of the villages. Both the economic level and the living environment can represent the actual situation in northeast of Shandong Province to a certain extent, and therefore it is universal for the protection of residential landscapes and the construction of new rural housing.

For example, Wertheim manor^[4], located in Wei Ji Village, Huimin County, Binzhou City, is the only existing castle-style manor in North China. Wertheim manor covers an area more than 40 acres and has been announced as a national key cultural relics protection unit by the State Council. Therefore, a traditional landscape protection zone can be planned within a certain range near the Wertheim manor, which will continue the Wei's manor's pattern, architectural form and landscape features. Therefore, the protection of some traditional landscapes can be determined through field surveys of relatively well-preserved old dwelling buildings, and subsidies will be given to the heavily damaged government to repair them, and the roads, buildings, and landscape areas that will be protected in the future will be identified. Due to the existence of some old and brittle earth embryo houses, except for a few old people living in the house, others have already become vacant. This part of the housing needs to be arranged in the village for unified repair. Since the construction and repair of the earth embryo house require specialized techniques and skills, this craft is again in the hands of a few elderly people. With the changes of the age, the technology is likely to gradually die out, so the protection of the existing earth embryo house. The protection of existing earth embryos is very important, and it is hoped that such protection will be lasting. Therefore, in the process of repairing the earth embryo house, the textual and video nature of the technique of manufacturing earth embryo house is recorded, and this unique manufacturing method is preserved. It is not just the repair of the earth embryo house that may be protected in this way for other traditional buildings.

The use of landscape design is particularly important for the housing construction of new socialist countryside. The landscape construction of the new countryside should inherit and continue the landscape connotation of traditional villages, making it sustainable. First of all, In the newly designed villages, the characteristics of the village landscape should be reflected, and the main body of the village pattern is the terrain and water resources. Second, it is necessary to pay attention to the inheritance of the landscape village culture; in addition, it is to design a new residential dwelling house that can be used to build a 2-3-story house-style house, which not only provides young people with personal space, saves land, but also lives in a courtyard. To be inherited.

5. Research on the Theory and Practice of Residential Environment Design in the Northeast of Shandong

The research topic of this study is the research on the protection design of traditional residential buildings in northeast of Shandong Province. When studying the living environment, the most important thing is to correctly understand the new socialist countryside construction and the scientific understanding of rural residential construction and the construction of a new socialist countryside. The new rural construction put forward by the Central Government is the fundamental issue for solving the problems of rural development in China. It is not an image project of repairing new houses and repairing new roads that are costly. It focuses on the dialectical relationship between universality and particularity. The measures taken are: analyze specific issues. China has a large number of people, a wide area, and many rural areas. There is a huge gap and difference between each region. Therefore, to analyze the construction of housing is not to spread the net type of construction, but to give more to the government in planning and construction.

In the process of rural transformation, corresponding policies are needed to protect the ecological environment of villages and to inherit ancient buildings. Choosing the principle of least damage under realistic conditions. The distribution of people and nature, that is respect for nature respects human beings. The principle of scientific restoration, in the process of economic development, the realization of the sustainable development strategy.

6. Conclusion

Through on-site investigation and research, we can see that the construction of human settlements is not only the task of the government and the designers, but also the task of all of us. This study starts from rural reality in northeast of Shandong Province and selects the Binzhou residential environment as the survey object. It proposes some reference opinions, design concepts and theoretical basis for the construction of residential areas in the region. It hopes to design and protect the residential environment of the new rural residential area in the hometown and do a little effort.

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References

- [1] Fei Xiaotong. The economy of the Jiangcun village - the life of the Chinese Peasants[M]. Beijing: commercial press, 2001.
- [2] Wang Lulu. Analysis on the Rural Ethics of Early Thought by Fei Xiaotong[J]. Qilu Journal, 2017, 5: 96-100.
- [3] Chen Zhihua, Lou Qingxi, Li qiuxiang. Chinese Ancient Village Series[M]. Hefei: Anhui Science and Technology Press.
- [4] Wang Xiaohui, Wang lina. Analysis on architectural features of Wertheim manor in Shandong [J]. Shanxi Architecture, 2008, 34(7): 60-61.