Modernity Expression of Traditional Regional Elements of Yunyang in The Context of Urban Renewal

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Abstract. In recent years, with the rapid development of China's urbanization, the newly built buildings increasingly ignore the traditional regional elements. Yunyang, as an immigrant city, has experienced the impact and integration of multiple cultures in history, and has unique cultural deposits and spiritual connotations. In order to inherit the traditional regional culture, it is necessary to find a new way to express the traditional regional elements in modern architecture. This paper attempts to analyse the existing practices in Yunyang and the whole country and find out the new methods of modernity expression of traditional regional elements in architecture.

1. Introduction
With the fast development of urbanization in China, the mass extinction of traditional cities and historical buildings has become a core issue of contemporary Chinese cities. Professor Shiling Z. pointed out our current problems: "on the one hand, China is moving towards the center of the world economy, on the other hand, Chinese architecture and Chinese architects are becoming marginalized in international architecture. In the field of urban planning and architecture, on the one hand, we should learn from the advanced international experience, and on the other hand, we also must deal with the impact of new international architectural culture, protect and develop the characteristics of Chinese cities and buildings. How to establish the theory of modern Chinese architecture, design buildings with critical significance, and establish the position of Chinese architecture in the World Architecture History is a difficult but urgent task for every Chinese architect." Nowadays, more and more people have realized the importance of traditional architecture. Therefore, how to construct the modern architecture with Chinese characteristics is an important problem in the rapid development of urban renewal.

2. Regional elements of Yunyang
Regional elements are cultural reflections that have accumulated and developed continuously during the course of historical development. Yunyang, located along the Yangtze River in the northeast of Chongqing, has a good geographical environment in the traditional construction culture, and is rooted in a special immigrant culture. In the process of being influenced by the Ba culture, it has a unique cultural environment. The architectural expression of these regional elements can be summarized as the overall layout and environmental adaptability of architecture, the spatial form with special meaning in traditional architecture, the structural technology of traditional architecture, and the traditional building materials and colors.

2.1. Architectural layout
The architectural layout of Yunyang shows a strong adaptability. The main architectural forms are shown in the new county and surrounding towns. Yunyang is affected by both terrain and river potential, forming two special architectural layouts. One is to conform to the mountain contour line layout, which means the road vertical contour line, the layout of the building along the road trend extension and the street becomes an important node of social and economic activities between the mountain and the outside and within the region, forming the building layout according to the mountain; The other is the layout of the roads parallel to the contour line in the riverside area and the building forms a good situation between mountain and river. At the same time, the roads distinguish the platforms, and the buildings present a trend of step layout. The perfect reconciliation with the mountain is one of the important characteristics of mountain architecture.

2.2. Street space
Street space is an indispensable part in the development of Yunyang, it has become an important part in people's daily life since the earliest old county. The street space not only reflects the local characteristic culture, but also generates residents' commercial behaviour and social activities. In general, it is divided into half street and both-sided street. According to different functions, half street is divided into single facing river and single facing mountain. Both-sided street is divided into living on both sides, commercial on both sides, commercial on one side and traffic on both sides.

2.3. Architectural form
The architectural form is a space that conforms to the living habits of local residents formed by the mutual integration and compromise of terrain, climate, environment, and human activities. The special terrain and environmental conditions make up the special architectural form of Chongqing. As a typical representative of Chongqing's residential dwellings, Yunyang also adopts the techniques of “building
platforms”, “cantilevering dwellings”, “pillar-supported dwellings”, “tracer dwellings”, “shuttle dwellings”, and “mountain-climbing dwellings”, which are built for different slopes. The overall dwellings show the trend of taking measures to local conditions. It has strong adaptability to the terrain and can make full use of the terrain. The courtyard is mostly a courtyard style or a building form developed based on the courtyard style.

Figure 5. “building platforms”. The slope is steep, and the slope is levelled layer by layer to form a broad platform.

Figure 6. “cantilevering dwellings”. The surroundings are relatively narrow, and the building or gallery is built on the floor to expand the indoor space, which are widely used in kerbside dwellings.

Figure 7. “pillar-supported dwellings”. Wide range of application, its bottom is ventilated.

Figure 8. “tracer dwellings”. It is used in the place where the hillside is relatively flat, and the building is constructed along the slope in a direction perpendicular to the contour line. This method is generally used in residential dwellings, and the roof is stepped.

Figure 9. “shuttle dwellings”. This is to stretch the roof of the house backwards to form a shed with a high front and a low rear. It is mostly used in wing-room.

Figure 10. “mountain-climbing dwellings”. Similar to the “tracer dwellings”, the house is built along the slope perpendicular to the contour line, the slope is flatter than that, only the indoor ground is divided into several different heights, and the roof remains as a whole.

2.4. Materials and constructions
As one of the representatives of Chongqing traditional dwellings, Yunyang traditional dwellings make full use of the rich bamboo and wood resources in the local area, and adopt structural forms such as post, lintel, column and tie construction. The wall is made of planks, bamboo fences, mud or reed mixed with rammed earth. A small number of walls are used bricks, and the outer walls are white plasters. The roof is covered with local small green tiles or thatched, and the eaves are far-reaching to protect the walls and the space under the eaves. The doors and windows of the details are mostly painted in light brown or jujube red. The overall dwelling is bleak in colour and simple in form, but due to its special structural form and geographical location, the building space is rich and profound. In buildings close to the riverside, there are often balconies or cantilevered corridors on the riverside for the residents to reduce temperature and ventilate. At the same time, owing to its special immigration culture, the dwellings in Yunyang area are inclusive, integrated into the form of a fire wall, reflecting cultural exchange and integration.
3. Modernity expression of traditional regional elements of Yunyang

Due to the rapid development of cities, the construction of cities has created a negative situation in the process of thousands of cities, a lot of traditional regional elements of cities are constantly losing, in order to prevent this negative situation from getting worse timely, it is necessary to find a new way to transform and utilize the traditional regional elements reasonably. The new method of traditional element expression can be concluded by summarizing cases.

3.1. The expression of traditional space

In the process of urban development, Yunyang’s characteristic elevation difference terrain is impacted, the new buildings invariably ignore the influence of characteristic terrain, and the characteristics of mountain buildings gradually decline. In order to reembody this characteristic, it is necessary to transform the traditional architectural spatial form into modern. We can learn from some existing cases.

For example, Hongya cave in Chongqing. The traditional spatial form is well preserved, the backward residential dwellings on the riverside are transformed, the pillar-supported dwellings with the characteristics of Sichuan and Chongqing are adopted, the unique street space of the old block is retained, and some modern improvements, such as internal space re-optimization and mixed use of new and old materials, which reflects the unique cultural connotation of the region. At the same time, the commercial mode is introduced, which integrates the modes of entertainment, leisure, food, business ..., to create a new living space for the declining urban fringe and attract the residents in this city to gather together. Meanwhile, the so-called "internet celebrity architecture" was successfully created by using the advantages of the current network environment, which attracted more foreign tourists and visitors from the whole country. It injected new vitality into the whole region while renewing itself, and successfully promoted the development of the whole city. And the Muxin art museum in Wuzhen, Zhejiang province. The art museum took example by the traditional urban spatial layout of Wuzhen, continued the original urban texture, dispersed the blocks and connected by corridors, so that people walking in can also feel the spatial changes of the ancient watery region south of the Yangtze river and create a spatial atmosphere. At the same time, the buildings are not obtrusive in the whole area and can adapt to the local environment well.

Here we can conclude that in the process of urban renewal, the renovation of old blocks can be divided into two categories: one is the renewal of old buildings. In the process of renovation, we can retain the characteristic parts of the old buildings, for example, in the terrain with height difference, we can retain the forms of traditional dwellings and add the transformation of modern aerial and platform, and the street space with unique memory can also be preserved through the form of modern corridor and the disheartened space. The other is the integration of new buildings. New buildings should draw on the form layout of old buildings to create as similar spatial experience as possible.

3.2. The expression and development of structures and components

With the development of science and technology, components and structures with traditional characteristics in daily life have disappeared, and more robust and suitable structures have replaced. However, in this process, the regionality of the building gradually disappeared. To rediscover the lost features, it is necessary to modernize the traditional structure and components to develop a new form.

For example, the Sifangjing Service Buildings in Yunyang used the traditional sloped roof shape and cut the roof according to the irregular terrain to break up the complete roof into several different traditional sloping roof forms. Allowing the viewers to feel the traditional style while clearly understanding the modernity, and its structure combined with the gentle slope of the terrain, which in order to solve the problem of mountain architecture. There is also the China Pavilion at the World Expo in Shanghai, which embodies China’s national image in the form of a “Crown of the East”, symbolizing structures and components that play an important role in traditional culture and becoming a symbol of
the nation and the country. The Chinese Pavilion is an abstract geometric transformation and structure extraction of the image of Dougong, which is expressed in a modern way. These elements are enlarged to allow the space to carry the functions required by the buildings.

Therefore, we also have two categories to traditional structures and components. One is to change the inherent form and add some new possibilities that are more in line with modern usage, such as cutting the roof to produce an irregular roof, but still reflect the image of traditional sloping roof. The other is to symbolize the traditional forms, such as magnifying the Dougong, the representative of carpentry work, to reflect the cultural connotation in the historical development.

3.3. The expression of construction materials and colours

The "running stone" park in Yunyang reflects the unique cultural history of the area by the collection and use of old objects. Here, stone mills, stone vats, gate piers and pig troughs that were eliminated in the process of urban renewal are mainly adopted. These symbolic elements with many memories of the old city are integrated into the landscape wall of the park, and some iconic spots in the old city are also put into the park. Meanwhile, old objects are reused to landscape sketch, maze and so on. Also, the overall colour is uniform. And Huxi Campus Library of Sichuan Fine Arts Institute is also based on the local regional tradition. It selects locally produced building materials such as clay brick and wood, etc., and presents it in the form of traditional sloping roof which can best reflect the character of the materials, and echoes with the landscape of the whole campus. The whole building external use blue clay brick, interval with timber facade, the internal and structure using colour and texture similar to cyan clay brick concrete, in certain places such as wood stair is adopted. The facade in order to better adapted with the function of the building use a large area of glass. The overall tone of the building is also plain grey, consistent with traditional architecture.

In a word, when using traditional building materials, more local traditional building materials can be used as the main material of the building surface, and the internal structure is still reinforced concrete, such as Huxi Campus Library of Sichuan Fine Arts Institute, and the following new materials can be appropriately added to meet the requirements of functional use. Traditional building materials can also be used as purely decorative components, such as the "running stone" park in Yunyang, which unifies historic and sightseeing.

4. Conclusion

In order to apply the regional elements of traditional culture to the current buildings, we can draw three new directions of architectural elements through the induction of existing excellent cases: One is to preserve the traditional space, which can be reflected by constructing new buildings and preserving old buildings. Second, the form of the structure and components can be refined through the new use of the old components and modern components restoration. The third is the expression of construction materials, which can be used in the construction of new buildings with traditional materials, and combined with functions to make appropriate adjustments and keep consistent in tone.
References
[1] Feng, L. Faculty of Architecture and Urban Planning [D]. Chongqing University. 2004
[2] Bo, F. Character and Protection Research of the Street Lane Space of the Mountain Historical Towns [D]. Chongqing University. 2005: 39-48
[3] Shiling, Z. Chinese cities and architecture under the influence of Globalization [J]. Architectural Journal. 2003(2): 7
[4] Hua, T. Huxi Campus Library of Sichuan Fine Arts Institute[J]. Urbanism and Architecture. 2011: 74
[5] Hua, T. Sifangjing Service Buildings [J]. Architectural Journal. 2019(3): 9