

Research on the Application of Cultural Symbols in Regional Design of Green Building

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Abstract

This paper studies and discusses the role of cultural symbols in the regional development of green buildings. As a carrier of culture, cultural symbols play a crucial role in regional culture. In recent years, as people pay more attention to regional culture and increase their awareness of environmental protection, regional green building emerge one after another, and cultural symbols are also widely used in them. However, the superficial understanding of culture and the meaningless stacking of cultural symbols has greatly improved the situation. As a result, the pseudo-regionalism of modern architecture has become increasingly obvious. At the same time, the development of new materials and new technologies has not played a good role in assisting the spread of regional culture. Although the current status of cultural symbols in the regional design of green building is not optimistic, it is only a stage in the development of architecture. Cultural symbols will eventually promote the development of regional design of green buildings, so as to realize identity and cultural identity, and realize the harmonious coexistence between man and nature.

Keywords

Cultural Symbols; Green Building; Regional Culture; Regional Architecture.

1. Overview of the Regional Design of Green Building

1.1 Green Building

Green building refers to the whole cycle of building, to provide healthy, applicable and efficient building space as the main purpose, to save resources, environmental protection, reduce pollution as the main means and goals, so as to achieve the harmonious coexistence between man and nature as far as possible [1].

1.2 Overview of the Development of Green Building

The concept of green building was first proposed by in 1969, the concept of energy-efficient building and ecological building was proposed[2]. Finally, in 1992, the concept of green building was identified as at the United Nations Environmental Development Conference[3].

The development of green building in China is relatively late.

Due to the great economic development in the 1990s, green building has not developed rapidly in China. In the early stage of economic construction, the development of green building and economic development is always in a contradictory state, so green building has not received more attention. Compared with other developed countries, the development of green building in China is relatively slow, and throughout its history, cross-stage development leads to the diversified and unbalanced development of green buildings.

1.3 Regional Design of Green Building

The economic development makes people begin to explore the organic combination of architecture with new technologies and new materials, and intend to design more energy-saving and environmentally friendly buildings with regional characteristics through the use of new materials. Therefore, the regional design of green building has become a topic of common concern.

Regional architecture is architectural work [4] formed by taking the unique natural environment of a specific region as the main factor and embedding a specific human history. At the same time, it is also a spiritual place, is obtained by the human long-term development experience, due to the construction of human activities form, the formation of regional buildings by the natural environment, the influence of factors such as social geography, is to follow the law of natural development form of a region of the essence of architectural culture. Therefore, regional architecture is the trend of the future building development. The development of cities also requires the existence of regional buildings, which result in living in cities and gives them their identity and cultural identity, thus forming a collective consciousness [5]. We can often see that this situation is very common in modern cities.

In addition, the development of green building should also rely on regional culture. In simple terms, the ultimate goal of regional design of green building is to use green technology in the process of design, construction and use to save energy and be in line with the principle of regional development. On the one hand, green building in the process of design, by the climate, hydrology, terrain and other unique geographical conditions hydrological limitation, green building will according to the building location of different strategies, in Tibet, for example, rich solar energy resources make building in energy use, can take solar power, additional sun room, in order to achieve the purpose of building energy saving. In Chengdu, where solar energy resources are scarce, the use of solar energy obviously cannot achieve better results. Therefore, green building from the beginning of design, green building, in addition to the use of building location advantage, but also relies on the new technology and new materials to achieve building energy saving, solar energy, capacity is very important, but the subsequent energy storage is still very important problem, the application of new technology, new materials give green building more favorable development conditions, in this paper, the early regional building is also a development stage of green building.

2. Cultural Symbols and the Regional Design of Green Building

2.1 Culture Symbols

Cultural symbols play a very important role in the development of regional architecture. As Gertz said, "Culture refers to the mode of meaning embodied in symbols inherited from history. It is a conceptual system expressed by the symbolic system, through which people communicate and prolong and develop their knowledge and attitude towards life"[6]. Cultural symbols is also the carrier of the history and culture of a region.

2.2 Cultural Symbols and the Regional Design of Green Building

Building service, also through its space form to give people different experience and psychological cognition, at the same time, the charm of the building in space abstract language makes people feel the architect wants to convey the design concept and design ideas, green building with a more friendly attitude to building into the environment, create environmentally friendly buildings. On this basis, regional buildings give local people cultural and identity recognition, and at the same time, they spread regional culture to other regions to promote cultural exchange and progress.

The development of green building is inseparable from the regional architectural culture. Regional architectural culture reflects the cultural connotation, local customs, living habits and architectural skills of a certain region. Architecture cannot exist independently from the site, especially in green buildings; and cultural symbols also cannot exist independently from its development history and regional characteristics. Green architecture, regional architecture and cultural symbols are also

dependent on the region and culture, which are the true reflection of the regional history. It can be said that they are inseparable, but at the same time, more deeply, they all rely on the uniqueness and diversity in culture. green building separated from regional culture will become a module that can be placed at will. Building modularity, although is not a new vocabulary, however, you can see it is still a lot of manufacturer gimmick, simple construction, adaptability, building speed makes the modular building seemingly has a big advantage, but in fact, modularity also because of its strong adaptability characteristics is often caused by the lack of culture everywhere the lack of "humanity" building. At this point, cultural symbols will appear particularly important.

3. Application of Cultural Symbols in the Regional Design of Green Buildings

3.1 The Application of Cultural Symbols and New Materials

After the industrial Revolution, the development of new materials led to the reform of building materials and construction skills. The large-scale application of glass and steel not only provided a broader choice of architectural forms, but also affected the subsequent development of green buildings. Although this impact is not direct, the use of new materials has undoubtedly promoted the development of green buildings. In passive houses, for example, the sun room and the use of the wall, make building in lighting, and energy use, etc., more in line with the standard of green building, passive solar room, also known as passive solar room [7], it mainly includes directly benefit type, collecting heat storage wall type, heat loop type, convection roof type, additional sunshine [8].

The paper mainly discusses the additional sunshine type, which is generally located in the light surface of the building, as the buffer space of the building, to achieve the adjustment of the indoor thermal environment. However, because it is generally located in the periphery of the building, the original building facade will be covered by it, or the sun room itself is one of the components of the building facade, which leads to the original building facade will cause certain damage. The newly built building facade needs to be reconciled with the local environment and culture, and the role of Cultural symbols is highlighted. Cultural symbols which make the passive sun room has a certain import of building space can go into a unique culture, with passive sun room often uses the steel frame as an example, due to the construction method of steel frame is different from other materials, and the performance of the material itself in building construction is relatively simple, therefore, cultural symbols can be relatively simple into them, but at present, using steel, such as metal materials, restore minority pattern patterns and used in architecture, or for decoration, or for component practice is more common but not wise, see Figure 1.

In addition, wood paint, as well as the structure of a lot of decorations, as it is shown in Figure 2, also makes the building in the material selection, there are more possibilities. It will even make people ignore the characteristics of the material itself, and more have the characteristics of local culture. From the perspective of use, the performance of the building has been improved, and the culture of the building has also been transmitted to the users with the same decorative expression. Just like the development of bracket sets in ancient Chinese architecture, it has developed from the main function of structural support to more decorative functions in the end. Whether this means that the development of bracket sets has the problem remains to be investigated. However, this paper believes that modern regional architecture should not only take it as a decoration and simple superposition, but should make use of the characteristics of materials to combine the stress system of bracket sets with the building to make new innovations.

Therefore, the development of new materials promotes the study of the regional culture of green buildings, and also makes the architecture have a deeper exploration of the application of local cultural symbols.



Figure 1. The Solar Room of Tibetan Houses



Figure 2. The Wood Grain Paint Used in the Railings of the Ancient City of Xi'An

Source: Internet

3.2 The Influence of Cultural Symbols and Regional Environment on Green Buildings

The construction of cultural symbols, in essence, is a process of cultural development, and at the same time, is also a resource game the process of [9], in the process of long-term development, the regional formed larger difference of local-style dwelling houses, in the northern folk buildings, for example, the northern cold climate, so building wall thick, small window of the mouth, in the same cold in the Tibetan plateau, architectural form also has similar characteristics, therefore, architectural form is related to local climate characteristics and terrain features. Therefore, at the beginning of green building design, the regional environment has a great impact on it. At the same time, it is also one of the reasons for the difference in cultural symbols, and the three are very closely related.

First, the climate ecological environment of this region, precipitation, climate conditions and solar radiation conditions will have a greater impact on green buildings. Take the western Sichuan region as an example, the annual total solar radiation in this area can reach 6700 MJ / m², the highest annual sunshine is about 2600 hours, and the solar energy resources are very objective [10]. Therefore, located in the western Sichuan region can use solar energy resources development green building, but parts of western Sichuan rainfall and less snow, if the solar photovoltaic panels must consider its installation Angle, and the characteristics of the larger rainfall make solar photovoltaic panels in the process of installation to meet the precipitation and according to the solar radiation Angle to achieve good effect of absorption of solar radiation. In Zhangjiakou area also, Zhangjiakou area has good solar resources, but because of its geographical location, in terms of climate, presents a temperature difference between day and night and has the characteristics of the larger snowfall in winter, so in order to prevent snow accumulation affects the normal work of solar photovoltaic panels, the Angle of photovoltaic panel installation put forward larger requirements.

In larger precipitation area, building for the slope roof, slope roof has become the area of the obvious cultural symbols, but, as mentioned above, the application of solar energy and slope roof will produce certain conflict, of course, this is not insoluble contradiction, with the development of the new materials, solar photovoltaic panels of the roof to meet the contradiction of photovoltaic panels and the slope also meet the demand of the building beauty, from the appearance, no tile charm, but also is no longer a cold modern "machine". However, whether this practice can meet the requirements of green building is also through the designer's delicate design and precise calculation.

The second is the topography of the site.

The topographic factors of the site mainly include altitude factors, slope valley factors and surface conditions of [7]. Due to the geographical characteristics of the high altitude area, the temperature will be lower, the window entrance of the building will be smaller, and the wall will be thicker. In the Qinghai-Tibet Plateau area, the wall will be lower in width and narrow on the top. These cultural symbols are often preserved and used in more modern architecture, although, the materials and construction techniques of the building have been quite different, the great improvement in thermal insulation performance can make the building does not need heavy walls, and choose a relatively light

and better thermal insulation performance of materials. But in the design, people will still put stone outside the concrete walls, to form a visual effect of the lower width and the narrow upper width, From a certain point of view. This is a sign of the identity. This identity between individuals about the group identity they exist [11], so this is often used in public buildings, such as museums. And because this approach would cause an increase in construction costs. Rarely seen in most of the newly-built dwellings, and after the author's research, Newly-built residential buildings, more will choose to retain the spiritual space in the interior space of the building, for instance, The Qiang and Tibetan fire pond space; There is also some outdoor mental space, see Figure 3. For example, the Qiang people will also place white stone on the roof of the four corners of the white stone worship, see Figure 4, Compared with the above two kinds, Buildings are formed due to the climate reasons, The long-term approach has become relatively less important.

In addition, in areas with complex terrain, the building types will also change, which of course is directly related to the history and culture of the area. For example, the creation of the Qiang Diaolou buildings is closely related to the Di Qiang people. In the long course of historical development, the Di Qiang clan continued to migrate around, the war made the Qiang people to build blockhouses, forming a strong defensive building type. The geographical elevation of the Qiang village is higher than the Yi nationality village, with the interaction with other nationalities and the type of buildings is the security of the villages and in the Qiang village, respectively, it is a typical case [12], as it is obvious in Figure 5.



Figure 3. Fire Pit Space



Figure 4. White stone worship



Figure 5. Black tiger Qiang Village Diaolou

Source: Internet

4. Cultural Symbols and The Pseudo-Regional Design of Green Buildings

4.1 Pseudo-regional Design of Green Buildings

During the design process of green buildings, it is necessary to select the most beneficial shape and arrangement for the building wind environment, light environment, and thermal environment based on local climate, hydrology, topography and other conditions. From this aspect, green building themselves are if it conforms to regional design and is separated from regionality, green building will no longer be "green"; however, the regional design of green building is far more than that, and the regional culture is also more than that. Simply considering this "regionality", the building will no longer be "green". It breaks away from culture and becomes a mere "machine" for use. In the process of green building development, folk culture and living customs still need to be integrated into it, and scenes have become an important means to reflect daily life [13] In modern architecture, green building strategies are often directly applied to architectural spaces. Then, by placing folk activities within the architectural space and site space, it enriches the core of the building. The resulting building looks like a regional building or a green building, but fundamentally it has shortcomings. It is more like a mixed-style building, with different functional spaces mixed together to form a "temporary" and "function-oriented" building. The "main" building is similar to a temporary container space in a construction site. Judging from its value, perhaps this kind of building has indeed achieved a certain

role in a short period of time, either for guidance, or providing activity space for the crowd, or to raise common awareness.

4.2 Cultural Symbols "Promote" the Pseudo-Regionalization of Green Buildings

Cultural symbols play a very important role in the regional design of green building. Cultural symbols have become the representative of regional culture, and at the same time, they have also become opportunistic "accomplices" in the regional architectural design.

With the accelerated process of globalization, cultural development faces the fusion and "abandoned" [14], regional architecture by people, countless architects called its architecture as regional architecture, but its architectural works really respect the local architectural culture is questionable. And symbols, especially cultural symbols, have become the most controversial in the design, architectural prototype became cultural symbols, green building in the process of coordinate building energy and cultural symbols, gives the prototype specific meaning, however, just the right form and representation of culture can also cause ambiguity. In the case of a triangle, it is often seen as a representation of the mountain, In the architectural design, overlapping triangles is often used as metaphors for the mountains, and from another point of view, the transparent pyramid building outside the Louvre can also be seen as a metaphor for the mountain, the structure can also be placed in the areas where the mountains have had a greater impact on the buildings and life, therefore, as we can see, on the basis that the same symbol has different representative meanings, architects use this characteristic of cultural symbols, with modernity, symbols that can exist in various places, it is far-fetched to express their understanding of regional architecture, further on, cultural symbols are also arbitrarily placed in green building by architects like triangles, this rough design, is an extrinsic representation of the pseudo-regional, although the design was to incorporate culture in architecture, so that the people who visit or use it can produce a cultural identity.

This paper holds that the significance of cultural symbols is based on the premise of human activities and human consciousness. The so-called cultural symbols in architecture are also developed through the historical memories brought by this material as the entry point. Therefore, it is controversial among regional buildings that only piles up cultural symbols without discussing their suitability. This kind of building is more like an exhibition building with cultural symbols as the exhibition content, rather than a regional building with its own function, which is a kind of pseudo-regional building. Of course, it is not impossible to improve people's recognition of architecture with patterns. On the contrary, it is also the most intuitive expression. However, the culture of a region is far from just this, and the construction of space still needs exquisite design. Taking cultural buildings as an example, although the feelings brought to people by the construction of architectural space cannot be compared with in-depth research, especially the design of museums, exhibition layout often becomes the most important link in whether people can feel the atmosphere of the space. This is because The design of the fixed exhibition halls of museums is often relatively ordinary, but there are also cases where people can truly feel the atmosphere of the space through the spatial design of the building, such as the Jewish Memorial Hall. The building does not put patterns or texture in an important position. The clever use of modern materials makes people feel the designer's thoughts on space and the understanding of culture. However, the green building can still use the symbols of the structural design to implant, and the use of the materials can realize the regional expression of the green building.

5. Conclusion

Under the tide of globalization, regional design of green building is more and more valued; cultural symbols, play a vital role in its development, at the same time, it also promotes the pseudo-regional development of green buildings, but this phenomenon is only a stage of the development of regional architecture, just as the study of regional culture, the application of cultural symbols, at the same time, cultural symbols in architecture. On the contrary, we should have a deeper understanding of the connotation of cultural symbols, and integrate them into the new architectural technology, and finally form a truly regional green building.

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