

Research on Ecological Architecture Design and Architectural Design Ecological Trend Based on Digital Technology

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ABSTRACT. *With the drastic increase in the world's population and the sharp decline in resources, it has led to an imbalance in the ecological environment. These changes have seriously affected human survival and development. With the continuous development of China's economy, the problems of serious energy consumption and environmental pollution have also arisen in modern buildings, so how to achieve sustainable and healthy development of buildings has become one of the most important topics of this era. With the continuous development of ecological architecture in China, the phenomenon of ecological architecture gradually replacing modern architecture has appeared. This article analyzes the ecological characteristics of ecological architecture and architectural design, and provides a reference for improving the design of ecological architecture in China.*

KEYWORDS: *Digital technology, Architectural design, Ecological design*

1. Introduction

With the development of China's science and technology, the development of China's industrialization has been promoted, although the prosperity of society and society has gradually appeared, but the development of industry has also caused severe damage to the environment, and ultimately caused the ecological environment to be severely damaged. The sustainable development of society is also threatened. However, with the innovation of China's construction industry, many more advanced construction technologies, construction equipment and construction materials have emerged in the construction industry. These changes have not only greatly improved the level of modern architecture, but also have contributed to the design and construction of ecological buildings. Ecology creates the conditions. Through the analysis of the concept and characteristics of ecological architecture, this paper expatiates the design of ecological architecture and the ecologicalization of architecture in detail, hoping to promote the good development of ecological architecture in China.

2. Basic Characteristics and Design Principles of Ecological Buildings

The ecological design concept is combined with the architectural design, and specifically, a harmonious architectural ecological environment is constructed by using various energy-saving technologies and resource utilization technologies. The basic characteristics of ecological architecture: ① the harmonious unity of the internal and external environment of the building, reflecting the green design concept of the building; ② fully pay attention to the relationship between people, architecture, and nature, pursue the harmony of the three, and take environmental protection as the architectural design Core; ③ The building materials and energy used by ecological buildings are energy-saving and environmentally-friendly, reflecting the in-depth implementation of low-carbon energy-saving ideas; ④ The rational use of building energy-saving technologies, the importance of solving environmental pollution problems caused by building construction, and formulation of Complete pollution prevention measures; ⑤ Ecological buildings will coordinate the design of the surrounding environment during the specific design, and carry out specific design according to the site selection and vegetation installation involved in the construction, reflecting the concept of specific analysis of specific problems; ⑥ Ecological buildings themselves It has ecological cultural connotation, and requires the full coordination of related personnel of ecological culture and specific design personnel, showing a high degree of coordination.

Grasping the design principles of ecological buildings is conducive to promoting the healthy development of ecological construction. The design of ecological architecture requires designers to follow the concept of ecological design, grasp the characteristics of ecological architecture, and design strictly in accordance with the ecological goals of ecological architecture design. First, follow the principle of rational development and utilization of land, and continuously improve the land utilization rate in cities. Based on this design principle, the designer's specific approach is to rationally increase the number of building floors and expand the basement space. Second, follow the principle of making full use of renewable energy to reduce energy consumption and achieve low-carbon energy-saving designs. Designers should actively apply new technologies to ecological construction projects, coordinate planning resources, and improve resource utilization efficiency. Finally, follow the design principle of making full use of existing resources in the area, and analyze local Geographical environment, cultural customs, etc., improve the cultural connotation of ecological architecture, and at the same time fully take into account the various limiting factors of ecological architecture design.

3. Key Technologies of Ecological Building Design

In the design of ecological buildings, the use of new energy should be mainly done, and various forms of clean energy utilization technologies have been derived. Solar energy is the most commonly used type of energy. The application of solar technology in ecological buildings is reflected in many aspects. The solar panels can

be used to build solar systems. The main structures in solar systems are glass boxes, fan air ducts, and heat storage devices. The heat collecting plate in the glass box is used to convert solar energy. The heating air device is a fan-based driving system. The heat generated is transmitted to the inside of the building structure through air ducts and stored. In addition, clean energy utilization technology also includes wind energy utilization technology, bioenergy utilization technology, etc. Ecological building technology should also pay attention to the reuse of waste and achieve the rational use of energy resources.

Ecological building design is a new concept of architectural design. The development of ecological building design is inseparable from the application of new materials, including new glass materials and solar photovoltaic materials. The new materials generally have a high degree of agreement with the design concepts of ecological buildings, and should be used as the materials of choice for ecological buildings. In the design of ecological buildings, new materials utilization technology should be fully explored and applied to actual construction projects. The use of new materials and new energy can improve the ecological benefits of buildings and realize the upgrade and development of ecological building designs.

4. The Role of Ecological Architecture in Architectural Design

With the continuous improvement of people's economic level, China's urbanization process has also been significantly promoted, but at the same time, the contradiction between urban development and natural ecological protection is also increasingly emerging. Failure to effectively coordinate the relationship between the development of urban architecture and ecological protection will not only cause great ecological damage, but also affect the level of urban construction. If some ecological design elements can be added in the process of urban construction, while improving the quality of the building, it will better realize the protection of the ecological environment and also promote the further improvement of the quality of urban life throughout the day.

In the process of urban construction and development, design planning is a very critical step and a necessary means to achieve good urban development. Incorporating related concepts of ecological architecture in the process of urban construction planning can change the contradiction between environmental protection and environmental protection in the process of urban development, promote the sustainable development of cities, achieve effective protection of the environment and energy, and promote long-term economic development.

Ecological architecture is a construction method that can effectively achieve ecological protection, environmental protection and energy saving, thereby laying a good foundation for the sustainable development of the city. In order to achieve the good development of the city, it is necessary to make a reasonable layout and distribution of the environment and energy. A good ecological building should be able to meet the various needs of people's daily life, and can promote the long-term development of culture, education and other undertakings. The most important thing

is that ecological buildings should realize the development of cities on the premise of satisfying urban ecological environmental protection.

5. Ecological Trend of Architectural Design

With the development of the concept of ecological architecture, the ecological trend of architectural design is becoming more and more obvious. The ecological development of the building and the concept of resource conservation complement each other, and together promote the construction of the building ecosystem. More emphasis on resource-saving building design is reflected in two aspects: Pay more attention to saving building raw materials. In the process of building design and construction, large-scale building materials and corresponding resources and energy are needed. The concept of ecological design requires construction workers to increase their awareness of resource conservation and avoid serious waste of building materials. An important way to improve the utilization efficiency of raw materials is to continuously use new materials. New materials and new materials have higher environmental protection and energy saving benefits, which can effectively expand building space, reduce building weight, reduce energy loss, control engineering costs, and improve the social benefits of construction projects. ; emphasize the full use of new energy. New energy refers to renewable energy. The rational use of renewable energy can reduce engineering costs and improve the ecological benefits of buildings. Solar energy and geothermal energy are the most commonly used energy types, both of which have low cost and no pollution to the environment, and are the best energy choices. The use of energy should be combined with the actual local conditions. For areas rich in geothermal energy, we should make full use of this energy for building design, adapt to local conditions, and realize the ecological design of construction projects.

Ecology and environmental protection have an inseparable relationship. The basic requirement of ecological design is to protect the environment and reduce damage to the environment. Coupled with the continuous improvement of people's living standards, and more emphasis on the ecological benefits of the living environment, in recent years, the green livable environment component has been a key requirement for the living environment. Architectural design in China is gradually developing in the direction of green, environmental protection, and energy conservation. Among them, environmental protection benefits are important concepts that lead the design of ecological buildings. Designers of ecological buildings should pay attention to the application of new environmental protection technology, increase the proportion of natural landscape in the building ecology, and meet people's specific requirements for environmental protection and comfort of buildings. It can be seen that green environmental protection has become an inevitable trend of building ecological design. Designers should actively implement this concept, continue to develop more environmentally friendly energy-saving technologies, and accelerate the environmental protection process of the construction industry.

The main role of architecture is to provide places for humans to live, entertain, and relax. Therefore, ecological architecture must be more humane in order to continuously meet people's demand for architecture. Architectural design should first focus on ecological design, and secondly, pay attention to the humanized design of the building and improve the affinity of the building. Designers must fully understand and grasp the needs of users, meet the individual requirements of different groups of people, and continuously improve the livability benefits of ecological buildings. The ecological trend of architectural ecological design is a set trend, which will continuously drive architectural ecological designers to follow environmentally friendly design guidelines, and stimulate people's potential ecological awareness, and promote the harmonious development of people, nature, and character buildings. On this basis, the ecological design of buildings needs to continuously explore new forms of ecological technology to give new meaning to ecological buildings. It is necessary to fully grasp the ecological building design and the ecological trend of architectural design, and to improve the environmental protection efficiency and livability of ecological buildings in accordance with the development requirements of the times.

6. Conclusion

Ecological architecture is the application of the concept of ecology to the design, planning, construction and management of buildings. Guided by the concept of ecology, the design and construction of buildings should strengthen the level of ecological services, realize the coordinated development of the economy, culture, and nature, and meet the requirements of ecological environmental protection. With the further development of the concept of ecological protection in China, the concept of ecological architecture will definitely receive more attention, so from this phenomenon. Ecological architecture design in China has a very broad prospect. Therefore, we should vigorously promote the concept of ecological architecture, and realize the protection of the ecological environment through energy-saving, water-saving and land-saving of buildings. The design of ecological architecture not only improves the level of modern architecture, but also promotes the sustainable development of human society, which is also an inevitable trend of the development of the ecological architecture of modern architecture.

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