

Diffusion of Green Building Design Concept in New Housing Construction

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Abstract: With the development of the times and the deepening of environmental pollution, the government has begun to manage and developed energy conservation, and gradually established and improved related legal systems and safeguard systems. At the same time, human beings have begun to turn to protect the environment while feeling that the environment is at risk, and constantly improved their awareness of energy conservation and environmental protection. Therefore, in the process of rapid development of manpower, material resources, and technology, we must strengthen the development of green buildings and protect the environment. This paper discusses the coupling law of green building evaluation system, the development significance of green building and its design concept.

Keywords: Green building, Green building evaluation standard, Design.

1. Introduction

Green building refers to saving resources, protecting the environment, reducing pollution, and providing people with healthy, applicable and efficient use of space within the full life cycle of the building; combining functions, beauty, and environment, and striving to maximize the relationship between people and natural. The rapid economic development has driven the simultaneous development of the construction industry, and the concept of green buildings has gradually been valued by people. In the context of the current environmental degradation, in response to the inevitable trend of building development towards green, promoting such cost-effective buildings with significant environmental accommodation advantages and a healthy built environment will gradually become the mainstream direction of future buildings, and strengthen the promotion and research of green buildings[1].

In 2017, the 19th National Congress of the Communist Party of China put forward five development concepts of “innovation, coordination, green, sharing, and openness”. The development of green buildings is a concrete practice to implement the spirit of the 19th National Congress. Based on the current situation of my country's pessimistic use of resources and energy, green building design is gradually developing in the direction of energy conservation. When designing, fully consider the local renewable energy such as solar energy and wind energy, and at the same time achieve the purpose of protecting the ecology and coordinated development; in addition, the concept of green design has also been extended to seek the entire nature and many aspects of the human community. The integrated design thinking in the field of architecture has experienced a process from small integration to large integration, from multidisciplinary integration to social system integration. Through systematic research on architecture, combining the characteristics of integrity, timing, and relevance, explore ways to achieve the harmony and unity of man and nature and propose corresponding solutions. Compared with ordinary buildings, the integrated design of green buildings not only requires more efficient use of energy, but also requires higher

environmental comfort and better economic benefits. In order to achieve this goal, designers are required to use relevant knowledge such as mechanics, ergonomics and psychology flexibly; in terms of materials, priority is given to selecting renewable resources that are adapted to the current situation; at the micro and macro level, the building is truly organic Unite. The integrated design in the building, unifying the functions, environment and economy, is of great significance to the environmental protection development of the construction industry.

In response to the national development concept, fully consider and analyze the coupling law of building form, space, plane and structure with the green building evaluation standard system.

2. Green Building Evaluation Standard System

In response to the development concept of “Innovation, Coordination, Green, Sharing, and Openness of the 19th National Congress of the Communist Party of China. The main research question, what factors have an impact on the coupling law of the green building evaluation system.” We mainly search for materials from two aspects in order to achieve the expectations of demonstrating the moral results we want. First of all, through searching a large number of documents, summarizing the achievements and excellent experience of predecessors, and collecting data, we can realize the description of the green building design concept. Secondly, we will take a questionnaire survey to collect the data we want. Adopt the Chinese Green Building Evaluation Standard to consider the coupling effect of multiple factors on the building. Among them, the green building evaluation standard system includes:

This standard is used to evaluate office buildings, shopping mall buildings and hotel buildings in residential buildings and public buildings.

When evaluating green buildings, the overall life cycle of the building should be considered in terms of energy saving, land saving, water saving, material saving, and environmental protection. The dialectical relationship between environment

and meeting architectural functions.

When evaluating green buildings, the principle of adapting measures to local conditions should be used in conjunction with the climate, resources, and natural environment of the area where the building is located. Environment, economy, culture and other characteristics.

In addition to complying with this standard, the evaluation of green buildings should also comply with national laws and regulations and relevant standards, reflecting economic. The unity of benefits, social benefits and environmental benefits.

In addition, the evaluation index system of green buildings is in terms of land saving and outdoor environment, energy saving and energy utilization, water saving and water resource utilization. On the basis of the six indicators of use, material saving and material resource utilization, indoor environmental quality and operation management, the evaluation of "construction management" is added index. And added bonus points to encourage green building technology, management innovation and improvement. The above is the green building evaluation criteria quasi.

2.1. Participants

Randomly select 90 students and 10 teachers, a total of 100, of which 45 students and 5 teachers are related to this major, and the remaining students and teachers are of any other major.

2.2. Procedure

Through a brief introduction to the students and teachers under investigation, the questions of this study and the evaluation of green buildings are marked, so that the respondents have a preliminary understanding of the questionnaire, and answer the content of the questionnaire based on their own judgment.

2.3. Data analysis

From the above data, it can be concluded that there are differences in the selection factors between related and non-related majors. Students and teachers of related majors are more accurate in their consideration of the problem, while non-major students and teachers are more subjective in their choices, and their choices are irregular. However, it can still be concluded from the data in the table that the factors of space, form, psychology, and plane layout have an impact on the coupling effect under the green building evaluation standard.

3. Result and Discussion

Purpose of the study include three sides. The first is to solve the problem that human beings have the natural resources necessary for development, the environment is sustainable, stable and balanced to provide security for development; the second is to control and restrain the scale, level and efficiency of human behavior consuming natural resources; the third is to maintain the integrity and richness of social ecosystem functions, so that the inheritance of history and culture can be

expressed in architecture, to achieve reference, inheritance and development integration, and to achieve the revision, optimization and progress of human survival view; Fourth, relying on one of the core carriers of human social behavior and life - architecture and landscape, realizing the demand of sustainable development of human society with the scientific concept of development, achieving a harmonious and livable ecological living environment construction level by improving the level of science and technology and the application, popularization and reduction of resource consumption, discovering new resources, renewable resources, recycling resources and alternative resources, and alleviating and finally solving the bottleneck problems of natural resources and environment that restrict and threaten the development and progress of human society.

The shape and space of the building are not only an important part of the green building, but also one of the best expressions of the regional characteristics of a region. The shape of a building is inseparable from the thermal performance of a building. Generally, k (building form factor) = A (outer surface area of the building)/ V (building volume), which shows that the size of the building is directly related to the thermal performance of the building. In proportion, the larger the number of shapes, the greater the thermal consumption in winter, and the better ventilation in summer; the smaller the number of shapes, the tidier the building, which can reduce the influence of external temperature on the internal temperature of the building[2]. A reasonable grasp of the shape and number of buildings is an important part of building energy efficiency design.

The most important role of architecture is to provide comfortable space for people to use, so people have a great influence on the building space, and people's psychological needs determine the diversity of the building. Gestalt psychology believes that wholeness and structure in consciousness are one of the most basic characteristics of psychology(Figure 1). Generally speaking, the whole exists earlier than the partial. Therefore, green buildings require understanding and analysis of people's psychological needs of buildings before design. In addition to making the architectural space meet people's psychological needs and visual experience, it also requires solving the problem of building energy consumption[3, 4].

The general layout of the building group includes parallel arrangement, staggered arrangement, diagonal arrangement, peripheral arrangement and free-style arrangement, etc. From the perspective of natural ventilation, the natural ventilation effect of staggered arrangement, diagonal arrangement and free arrangement is better. Dislocation arrangement is equivalent to increasing the distance between the front and rear buildings, which is beneficial to ventilation and can also save land. When restricted by terrain, diagonal arrangement and free-style arrangement can be selected, which can be arranged flexibly according to specific terrain, topography and orientation.

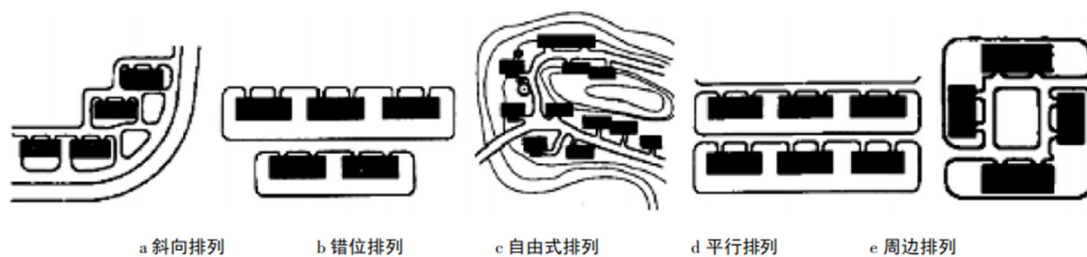


Figure 1. Plane layout form of building complex

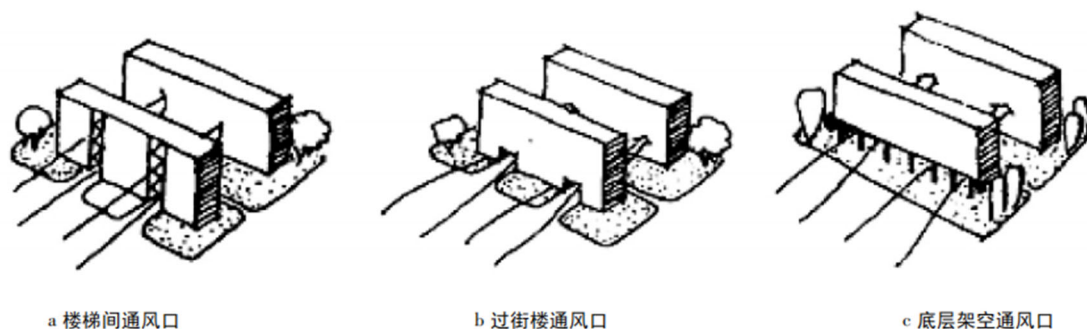


Figure 2. The building is provided with air vents

Among building energy-saving measures, building energy-saving structures mainly include wall energy-saving, roof energy-saving, and door and window energy-saving three aspects. Energy-saving wall structure: sandwich composite wall, external thermal insulation composite wall, internal thermal insulation composite wall(Fig.2). Roof energy-saving structure: do roof thermal insulation project. Energy-saving structure of doors and windows: Increase the thermal resistance value of door and window frame profiles. At present, the frame materials of energy-saving and heat-preserving doors and windows are mainly made of plastic, thermal insulation aluminum alloy, and glass steel. The glass inlaid in doors and windows can be hollow glass with better heat insulation effect.

4. Conclusion

The idea of green building design is consistent with the sustainable development policy of our country, which can improve the market competitiveness of construction enterprises, at the same time, improve the application of green building design and the innovation and optimization of design technology in our country. Reduce the waste of construction costs, so as to achieve of energy conservation. In the process of building, the imported energy saving equipment and construction materials can reduce the cost of building, increase the utilization rate of resources, and then combine with the construction technology to realize the energy saving goal of green building design.

At present, our country's construction industry is increasingly focusing on the design of green buildings, especially the optimization of green building facades, thereby reducing costs. The green building theory is currently being gradually developed, but in the design, the green building concept needs to be further implemented, and the integrated

design theory needs to be further applied. Carrying out the integration of green building theory and integrating design theory will help realize the unification of function, environment and economy, strive to maximize the use of resources, and finally build a green building system.

With the improvement of people's living standards, a good living environment has become one of the major needs of people. Under the background of the government's energy conservation, emission reduction and environmental protection policies, the development of green buildings is getting faster and faster. When designers are designing green buildings, it is necessary to consider all aspects from the perspective of the entire life cycle of the building, improve the quality of the building, extend the service life of the building, and provide a better living place for the majority of users. Realizing the diversified and systematic development of green concepts in architectural design is a necessary measure for China to build ecological green and achieve sustainable development.

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