



Research on the Integration and Application of Green Building Concept in Fully Decorated Residential Design

Jinchao Dai

Tianpu Architectural Decoration Design (Tianjin) Group Co., Ltd., Tianjin, China.

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***Corresponding author:** Jinchao Dai, Tianpu Architectural Decoration Design (Tianjin) Group Co., Ltd., Tianjin, China.

Abstract

With the rapid development of the national economy in the new era, people's living standards have significantly improved, and the pursuit and demand for a green ecological environment are growing day by day. In this context, the decoration design concept of residential construction projects is gradually shifting towards green, environmental protection, and energy efficiency. The introduction of the green building concept is not only in line with the current development trend but also an inevitable choice to meet people's demand for a high-quality living environment. Based on this premise, this paper first discusses the significance of the interior design in fully decorated residential buildings and its influence on people's quality of life. It then delves into the integration strategy of incorporating green building concepts into the design of fully decorated residential buildings. Furthermore, it elaborates on how to effectively implement these green strategies in the actual design process through case studies. The future development trend of green building in fully decorated residential design is forecasted to offer guidance for sustainable development in the field of architectural design.

Keywords

Residence, Green building, Decoration, Design

China's construction industry is developing rapidly, and the number and scale of residential construction projects have increased significantly. In the construction of residential projects, architectural design is very important, and through the application of green building concepts, the level of architectural design can be significantly improved. Fully decorated residential buildings have become a crucial part of modern architecture, in the planning and design of the concept of green building, conducive to improving the ecological environment and performance of residential, but also to promote the construction industry towards green, energy saving, environmental protection direction. Therefore, it is of great significance to explore the application of the green building concept in the design of fully decorated residential buildings in detail.

1. The importance of fully decorated residential interior design

Interior design includes a variety of disciplines, and involves more special aspects, usually summarized into the following aspects, respectively, interior decoration art design, space image design, interior physical environment design and interior decoration design. In green design, according to the application characteristics of indoor space and actual environmental conditions, the use of reasonable technology and artistic methods to create an excellent residential environment, and can meet the psychological and physiological needs of people, while the design art of internal space conditions must also

meet the spiritual and material functional requirements. Its design concept and form are based on caring for life and environmental protection to carry out green activities. At present, most green building design pays more attention to the external design, in the interior decoration design, because people will have direct contact with each part and space, need to pay more attention to the green building design. In a complete renovation, the indoor environment mainly includes physical conditions and air quality. If the indoor air is poor, it is easy to develop sick building syndrome. In the United States, indoor air pollution has been listed as an important environmental factor endangering people's health, but China's research, control, and detection of indoor space quality are relatively weak. The physical environment mainly involves the light environment, the thermal environment, and so on. In hot summer and cold winter areas, there is no central heating, resulting in relatively poor indoor thermal environment quality during winter [1]. In indoor spaces, the lighting environment and the sound environment are closely related to the psychological and physiological well-being of individuals. Lighting directly impacts the light environment and also encompasses energy-saving considerations. Actively promoting green building design can not only reflect the spirit of humanism, but also enhance the green concept of people's livelihood. With the continuous implementation of the requirements of finished houses, the interior design of residential buildings has gradually unified construction, management, and design conditions, which provides a reliable guarantee for the smooth implementation of indoor green building design. In architectural design, the interior design of fully decorated residential buildings can play a complementary and extended effect, and the concept of green building design is a key measure of interior design [2].

2. Integration strategy of green building concept in fully renovated residential design

In the process of fully renovated residential design, the use of green building concept has a positive effect and has a direct correlation with people's application experience and the environmental protection effect of the building. By actively promoting green buildings and green decoration, we provide guarantee for the stable development of the construction field. Therefore, it is necessary to combine energy conservation and environmental protection measures with the specific situation of industry development at this stage, and rationally adopt the concept of green building to improve the quality of the entire residence when carrying out the design of fully decorated residential buildings.

2.1 Construction design concept

The decoration work is compared with the construction of various building projects, and the design work should be carried out based on the original building structure. Therefore, before the design, we should carry out a comprehensive investigation of the specific situation of the existing structure, fully understand the internal information of the house, meet the various decoration design needs of the owners, and also need to master the design focus. Then carry out decoration design according to the concept of green building. In this operation, it is necessary to determine all aspects of the use of green building concepts in the design of fully renovated homes and carry out operations according to basic principles. In addition, it is also necessary to ensure the rationality and economy of the design plan to prevent the excessive pursuit of energy conservation and environmental protection, resulting in decoration operations that cannot meet the relevant standards.

2.2 Choose green and environmentally friendly building materials

The selection of materials generally will directly affect the quality of residential environmental protection and energy saving, in this regard, it is necessary to design materials reasonably. Before the design, it is necessary to fully grasp the market situation, understand the specific price, performance, and quality of various types of materials, and make various comparisons to select the appropriate residential decoration construction materials. In this link, it is necessary to strictly control the quantity and performance of the material, and test the environmental protection and energy saving effect of the material under special conditions; optimize the material selection plan. The decoration operation is usually affected by various external factors, and cause construction problems, therefore, in the selection of materials, it is necessary to carry out prediction and analysis, choose green energy-saving materials, and ensure the safety and stability of the entire building structure. The various data of the building structure are used as the basis to optimize and rectify the design plan, and it is also necessary to prepare an alternative material plan to provide a reliable guarantee for the subsequent project construction.

2.3 Use ecological and environmental technologies

Through the rational use of ecological environmental protection technology, indoor environmental quality can be significantly improved, and in the actual application process, it is necessary to fully understand various indoor pollutants. Therefore, in the design of fully decorated residential buildings, the concept of green building should be used to carry out a detailed analysis of the sources of pollution and related pollutants in the past building structure and give full play to the application effect of ecological environmental protection technology. In all types of technologies, green plants are a

convenient and efficient way to improve indoor air quality. According to regulations, green plants can effectively remove benzene, formaldehyde, and other harmful gases from the air. Additionally, they can help regulate air quality, absorb carbon dioxide, and ensure that indoor air remains fresh. In the fully decorated residential design, it is necessary to comprehensively consider the interior greening content, and it is also a decorative form of more levels, which can be arranged in different areas of the entire building structure, such as windowsills, balconies, etc. However, when setting the green plant, it is necessary to prevent conflicts with indoor lighting and ensure that the lighting degree can meet the application needs of people [3].

2.4 Principle of recycling

In the concept of green building, energy saving is a more important index. Therefore, in the process of carrying out the decoration design, it is necessary to conduct a comprehensive analysis of the energy consumption of the decoration operation and the house construction stage. First, the material needs to be recycled, if the material can be reused, during the demolition and application, the needs to be strengthened protection to prevent waste of material; Second, the rational application of new materials, as far as possible to use energy saving and environmental protection construction materials, such as thermal reflection glass, thermal insulation regulation light glass, etc., to reduce resource loss, but also to reduce cost input.

2.5 Adopt clean energy technologies

In the fully decorated residential design, the use of the green building concept, and the need for a wide range of clean energy, not only can play a role in energy conservation and emission reduction, but also reduce cost input. At this stage, in the renovation of the house, the basic use of solar energy, and the use of related equipment can directly replace the solar energy with heat and electricity, to provide security for People's Daily life and work. At the same time, the use of solar technology can also significantly improve the insulation level of the wall and adjust the overall function of the building structure [4].

2.6 Use green furniture

In the process of house decoration, furniture is a more important part, and directly affects the beauty and application function, in this regard, in the design, it is necessary to choose and design the appropriate furniture. At this stage, during the production of furniture, it is necessary to combine the concept of environmental protection and use relevant technologies to deal with various harmful substances in traditional furniture. In addition, it is also necessary to determine the furniture-related green environmental protection requirements, in the selection process, it is necessary to strictly check the furniture factory materials, and apply green environmental protection furniture to reduce indoor pollution.

3. The application strategy of the green building concept in a fully decorated residential design

3.1 Project background

A new high-rise residential project is a landmark building in the city. In the whole decoration design of the project, it is necessary to integrate the concept of green building, improve the building environment, and improve the economic benefits of the project construction. During the design process, in-depth consideration and reasonable integration into the local climate and cultural characteristics ensure that the concept of green building runs through the entire construction process. From the selection of building materials and the construction process to the final interior design, every link emphasizes environmental friendliness and sustainable development of residential buildings.

3.2 Project design scheme

In the design of the project, the roof is planted with diverse plants, thus creating an ecological roof that fully absorbs rainwater, significantly reduces runoff, and eases heat transfer and reduces building energy loss. Solar panels installed in the south of the house can absorb and utilize solar energy to provide hot water resources for the building, as shown in Figure 1. In the facade design of the building, double glazing and thermal insulation materials are used to improve the indoor environment comfort. In the residential building planning layout and window design, wind energy is fully utilized to improve the building ventilation environment and reduce the energy consumption of HVAC equipment. Energy-saving and environmental protection materials are applied to all decoration raw materials and smart home systems are installed, which can monitor energy consumption in the operation of construction projects and improve resource utilization [5].

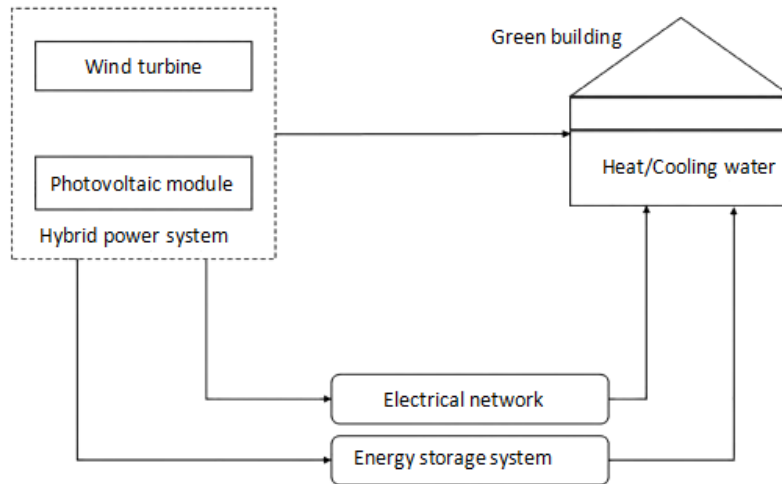


Figure 1. Green clean energy system.

4. Conclusion

To sum up, this paper combined with examples, the integration of green building concepts and application points in the design of fully decorated residential building engineering were studied in detail. In the planning and design of fully renovated residential projects, we should be committed to improving the living environment, using green environmental protection materials, improving resource utilization, using water-saving and energy-saving technical measures, and creating an environmentally friendly environment for people. According to the analysis of examples, through the application of the green building concept in the design of fully decorated houses, it is beneficial to reduce the loss of energy consumption and improve the comfort of the living environment.

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