Research on Interior Design of Low-Carbon Ecological Concept with Computer Aid

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Abstract. Interior design is an important part of people's living environment, which will directly affect the level of urban living environment. With the prevalence of the concept of low-carbon economy and the development of computer technology, more and more construction projects adopt the traditional low-carbon ecological theory and combine it with realistic design through computer-aided technology, so as to promote the healthy and sustainable development of low-carbon environmental protection. By talking about theory, we can get along well with nature, which can create a comfortable living environment for people. First, this article analyzes the application of traditional low-carbon ecological theory in interior design under computer-aided technology. Then, this paper analyzes the application of traditional low-carbon ecological theory in interior design. Finally, some measures are given.

Keywords: Interior Design, Low Carbon Ecological Concept, Rational Utilization, Computer Aid

1. Introduction
Since the 21st century, the concept of low-carbon environmental protection has become one of the mainstream ideas. With the promotion of environmental protection by the state, people's awareness of environmental protection has gradually improved, which also caused the prevalence of low-carbon ecological concept of interior design. Therefore, more and more interior decoration styles are gradually changing, which has gradually changed from luxury style to simple style. Through the transformation of decoration style, interior design has changed from lighting, ventilation, materials, space, greening and other aspects, which has been gradually inclined to the decoration close to life[1]. Based on the low-carbon concept of interior design, we will reduce the waste of resources, which also promotes the development of low-carbon environmental protection concept. With the continuous progress of modern society, the concept of interior design will gradually develop with the low-carbon ecological theory, which will better meet the needs of residents and office workers. Through low-carbon interior design, we can reduce energy consumption and environmental pollution, which will increase the harmonious coexistence of human and nature. By controlling the energy consumption of the indoor environment, we can create a personalized interior design, which will better serve the needs of people's living environment. At the same time, based on the concept of low-carbon interior design, we can not only reduce production costs, but also create a good ecological environment and design environmental protection level. The concept of low-carbon ecology is the mainstream direction
of the future development of interior design, which will contribute to energy conservation and consumption reduction and industry development.

2. Application of traditional low-carbon ecological theory in interior design

Traditional low-carbon ecological theory has become an important concept in interior design, which requires changes in many aspects, as shown in Figure 1[2].

![Reasonable natural lighting](image1)

![Good natural ventilation](image2)

![Selection of decoration materials](image3)

![Pleasant greening](image4)

**Figure 1.** Application of traditional low-carbon ecological theory in interior design.

2.1. Reasonable natural lighting

Natural lighting is mainly the light of the sun, which is an important embodiment of the low-carbon concept. In modern interior design, many designers will use natural light as much as possible, which will better reduce resource consumption. Le Corbusier and Alva Alto are the best interior designers who are good at using natural light. Their interior design styles are shown in figure 2 and figure 3.

![The natural lighting in Villa Savoy](image5)

![The natural lighting in Villa Maria](image6)

**Figure 2.** The natural lighting in Villa Savoy.

**Figure 3.** The natural lighting in Villa Maria.

2.2. Good natural ventilation

![The natural ventilation in the famous "Double Zero Building"](image7)

![The natural ventilation in Penang Island Building in Zhengzhou](image8)

**Figure 4.** The natural ventilation in the famous "Double Zero Building".

**Figure 5.** The natural ventilation in Penang Island Building in Zhengzhou.
Natural wind is a renewable resource, which will keep the air fresh in the interior space, which is the most important design in interior design. Through the design of natural ventilation, we can introduce the research results of aerodynamics, which will better meet the comfort of indoor living conditions. In the design of modern office space, commercial space and residential space, all interior design is to make the best use of natural ventilation, which is also an important choice for customers. Many famous designers attach great importance to indoor ventilation treatment, which can make us more close to nature. For example, the famous "Double Zero Building" and Penang Island Building in Zhengzhou are shown in Figure 4 and figure 5[3].

2.3. Selection of decoration materials
The progress of science and technology provides more decorative materials, which brings more advantages for the development of interior design. Recyclable materials can be selected in interior design, which will make better use of low-carbon concept. Through traditional low-carbon ecological materials, we can make interior design more natural, which will make people closer to nature. Low carbon materials not only have the characteristics of nature and environmental protection, but also reflect the personalized decoration effect. Through low-carbon materials, we will achieve harmony between human and nature, mainly including the commune at the foot of the Great Wall - bamboo house and London zero carbon Museum, as shown in Figure 6 and Figure 7.

2.4. Pleasant greening
Indoor greening can play a role in regulating the artificial environment, which will make people close to nature[4]. Many famous designers attach great importance to interior green design, such as public space, hotel, office and living. By arranging flowers, plants and trees, we will improve our comfort, which will make people closer to nature. Of course, many designers will introduce natural plants into the interior space, such as the five-star hotel Guangzhou white swan hotel designed by moberge, as shown in Figure 8.
3. Measures to improve the low-carbon ecological concept of interior design

3.1. Improve the utilization rate of indoor space
Under the concept of low-carbon ecology, the space scope of interior design often has a certain loss. Therefore, we must make a scientific and reasonable spatial distribution plan, which can achieve the overall coordination between the interior space design and the surrounding environment. In interior decoration, more and more people advocate the use of low-carbon, energy-saving, environmental protection decoration materials, but also need to improve the utilization of indoor space. Low carbon materials can save the cost of interior decoration, which will ensure the overall safety of decoration materials. Based on the concept of low-carbon ecology, we can create a comfortable and safe living environment, which will improve the sustainable development of low-carbon economy[5].

3.2. Improve the low-carbon rationalization of residential interior environment design
The most important part of interior design is environment design and display design, which is an important part of interior design[6]. Therefore, the rationality of the interior environment design scheme will directly affect the living environment of residents. Therefore, designers need to carry out environmental design and furniture display design, which will realize the scientific, reasonable and low-carbon interior design. Therefore, we need to design a design scheme that conforms to the indoor environment. Through low-carbon environmental protection materials, we can ensure the overall living comfort.

4. Conclusion
Facing the needs of sustainable development and environmental protection, interior design also gradually chooses low-carbon ecological materials, which improves the importance of environmental protection. By promoting technological innovation and material innovation, low-carbon ecological interior design can reduce production costs, which can reduce the pollution and damage to the surrounding environment. By using computer-aided technology, low-carbon ecological theory is combined with realistic design. By improving the environmental protection level of interior design, we can create comfortable living space, which will have far-reaching significance for social modernization.

Acknowledgments
National Art Fund: Research on the protective innovative planning and design of Guanzhong traditional residential settlement(number:20165023).

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