

On the Sustainable Development Direction of Modern Interior Design in China

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Abstract: In the information age, human beings are faced with many problems such as deterioration of living environment, population explosion, ecological destruction and energy shortage. As one of the long-term strategies for maintaining human life, survival and development, the concept of sustainable development provides a macroscopic theoretical guidance for curbing environmental degradation and maintaining ecological balance, and also puts forward new requirements for modern interior design. In view of the increasingly serious environmental deterioration, this paper attempts to explore an effective way of sustainable development of interior design, and clarify the future development direction of interior design from different aspects of environment, science and technology and culture, which provides theoretical basis and thinking methods for design innovation and cultural development.

1. Introduction

With the coming of knowledge economy era, people's living environment has changed greatly. While people enjoy high-quality material life, problems such as ecological destruction, environmental pollution and energy depletion are becoming increasingly serious, and sustainable development has become an important concept for the development of all countries [1]. Modern interior design considers the normal development of human behavior and the harmony between them in the space of modern life. It is an ideal interior environment design to meet the material and spiritual requirements of people's life and work, which is closely related to people's life, so that it has developed rapidly into a highly professional and practical emerging marginal science. Therefore, exploring the sustainable development of interior design is the most urgent scientific research topic, which needs serious consideration. This paper tries to explore from the following aspects, and pay close attention to the research in this field together with peers.

2. Guided by green design

2.1. Green should be reflected in space design

Green space design is to create comfortable living and living environment for people by quoting or recreating natural landscape, and to meet people's physical and mental needs by reflecting the vitality of indoor space. There are four main aspects [3-4]:

(1)Quoting natural landscapes, such as natural objects, rocks, soil layers, flowers and trees, etc., after the designer's unique design, it is directly applied indoors.

(2)The combination of inner and outer space is to extend the external natural elements or landscapes indoors, so that people can fully enjoy and feel nature indoors, and let people talk with nature at close range.

(3)Make full use of bionics to strengthen the effect of space green design, such as using waste plastics, glass and stainless steel to make some specific animal shapes or flowers and trees.

(4)On-the-spot material selection, that is, on the premise of ensuring that the local ecological vegetation is not destroyed, reasonably increase local materials such as natural plants and natural stones, and fully display the characteristics, texture and properties of these natural raw materials, so that people can feel the simplicity of the natural environment and the comfort and warmth of the

modern environment.

2.2. Green building materials

Green building materials refer to construction materials with low harm to human beings and little environmental pollution, which can be recycled. It can effectively protect human health and beautiful environment, and has the characteristics of energy saving, regeneration and non-toxicity. It should be noted that the raw materials used are not natural resources, but some industrial wastes. These industrial wastes will become renewable resources after processing, and then use them to produce green building materials.

2.3. Embodiment of ecological aesthetics

In the interior environment design, we should do two things well: first, we should conform to the ecological law and follow the natural law of beauty, so that the interior design can reflect the natural ecology to the maximum extent; Second, we should give full play to people's innovation and creativity, and make full use of science and technology to scientifically and rationally transform or reprocess nature, so as to design and create a space environment with artificial ecological aesthetics and realize the perfect combination of artificial and natural environment [5].

In the contemporary interior environment of houses, the application of color tends to be single and independent, and in recent years, the hyperplane design has been born out of the true color of objective objects. In the future, modern interior ecological design should pay more attention to the systematicness and coordination of interior space colors, and should be based on the natural attributes and laws of colors, so as to fully express the aesthetic connotation and philosophy of new colors. In other words, the application of the new concept of ecological aesthetics is an important trend of sustainable and stable aesthetic development of interior design.

3. Take scientific and technological progress as a link

3.1. Indoor energy-saving technology

Saving conventional energy is an important part of the sustainable development of interior design. To solve the energy problem, besides the organization and design of space, the implementation of modern scientific and technological means such as lighting technology, ventilation technology, heat preservation technology and lighting technology has great maneuverability.

In lighting design, the design requirements can be achieved by adjusting brightness and using glare, and the energy consumption can be greatly saved. Even if artificial lighting products are used, energy-saving lamps with low energy consumption should be selected. People spend most of their time indoors, so air quality is crucial [6]. At present, indoor air conditioning is mainly achieved through air conditioning, and people are prone to feel unwell when staying in this kind of environment for a long time. Therefore, it is particularly important to use natural fresh air for indoor ventilation, and the problem of natural ventilation can be effectively solved by inductive construction technology. The most widely used technologies are solar energy utilization technology and wind power generation technology. It mainly converts solar energy and wind energy into heat energy and electric energy through specific structures and materials, which can create a cleaner and more comfortable environment indoors.

3.2. Technology in intelligence

Modern information technology has involved all aspects of people's lives and changed people's lifestyle and structure, which is also the final result of the application of intelligent technology. At the initial stage of intelligent technology application, there are mainly infrared automatic alarm, video data transmission, intercom and other technologies; The advanced stage is full automation [7]. All electrical equipment will change with human behavior or operation after being processed by software and programming, and after coming into contact with human body. For example, the application of intelligent waterbed is to automatically adjust the temperature and height according

to the height, which satisfies the physical and mental needs of people to the maximum extent and makes people feel comfortable and convenient. Intelligent building materials refer to materials that operate according to changes in indoor environment. For example, when sound, pressure and magnetic force are sensed, they will change accordingly; For example, wallpaper that can be automatically adjusted according to the change of ambient temperature and humidity around the space; Another example is the sound control lamp.

4. Higher pursuit of sustainable development in interior design

4.1. Incorporate traditional cultural elements

China's traditional culture is extensive and profound. After thousands of years of accumulation, it has formed a unique folk culture and Chinese spirit, which requires the indoor layout to have unique Chinese cultural heritage. Usually, symmetrical form is the main way to lay out the main hall, and regularity and seriousness are the principles of furnishing furniture. Partition fans and screens are used to speed up indoor air circulation. Most green furnishings should be arranged in the hall to show the natural unity of man and nature. If the furnishings are ingenious, they can play the role of smoothing space and creating artistic conception.

China's traditional culture is a culture that attaches importance to ethical values. In the interior layout, the genres of door panels and screen paintings can be rich in ethical colors. Generally speaking, the unity and harmony between social folk customs and human beings are reflected in interior design [8]. For example, some buildings reflecting the historical and cultural characteristics of the city are built in some ancient neighborhoods. In these buildings, the interior decoration should keep the traditional style and style in detail, shape and color, highlight the traditional charm, and conform to the aesthetic standards of modern people, abandon some superficial decorations and carvings, and retain traditional symbols. In this way, it is economical, practical, beautiful and generous, and the effect can be said to be twice the result with half the effort. This simplified treatment of traditional decoration is easier.

4.2. Humanization of interior design

People-oriented and serving people is the main theme of interior design in the 21st century, and it is also the ultimate destination of humanized design style. Interior design reflects people-oriented determination and style, and this style can be continuously passed down. Interior design considers to provide people with a harmonious space for life, work, rest and entertainment, in which people feel care, warmth and respect, which not only meets people's physiological needs, but also greatly meets people's psychological needs. This mode of interior design finally shows the harmonious coexistence between people and indoor environment, which is efficient, economical, comfortable and beautiful.

5. Application of sustainable development concept in modern interior design

5.1. Application of sustainable development concept in indoor space environment

The content of interface design in indoor environment refers to the hexahedron design of indoor environment, and from the design goal, the content of interface design refers to the form design of interface (the design of top surface, wall surface and floor) and the selection and matching of interface architectural decoration materials. Most importantly, to achieve sustainable design of indoor interface, we need to consider many elements and design forms comprehensively.

To advocate the ecological aesthetic concept of human settlement environment in design, we should consider these aspects: First, the most fundamental requirement of human settlement environment is a sound ecological structure, which is suitable for human survival and sustainable development. Second, the living environment with sound ecological structure will give people a vigorous external aesthetic feeling, that is, ecological beauty, which is an objective law. Third, there are various aesthetic means and orientations to beautify the living environment, but ecological

beauty should be regarded as the highest realm and the primary and main aesthetic orientation. Fourth, today's living environment is no longer simply used as a means of survival, but has also become a pleasing and enjoyable enjoyment (Figure 1). These aesthetic concepts of ecological environment have become the direction of sustainable design of indoor interface.



Figure 1 A spatial example of advocating ecological aesthetics of human settlements

5.2. Application of sustainable development concept in indoor physical environment

With the progress of modern science and technology, the continuous improvement of people's life and the increase of indoor pollution sources, people's understanding and concern about indoor air environmental problems gradually emerged after the indoor air quality problems were introduced. Indoor air environmental problems are constantly changing with the emergence and development of buildings. Therefore, in order to realize the sustainable design of indoor environment, it is necessary to control the content of various chemical pollutants in indoor air, so that the indoor air has good natural ventilation and a certain standard of comfort, so as to ensure healthy and comfortable indoor air quality.

Indoor greening can not only beautify the environment, but also have a certain sound absorption effect. Interior decoration with green plants is an important part of interior decoration. Compared with other materials, green plants have unique advantages, such as gorgeous colors, soft curves, pleasant fragrance and life breath. In addition, green plants are the biggest advantage of environmental protection, greenness and no pollution. In recent years, with the enhancement of people's awareness of environmental protection and the improvement of artistic taste, green plants have begun to enter hotels, hotels, shopping malls and ordinary families with their unique advantages (Figure 2). At present, indoor greening has become a fashion and pursuit.



Figure 2 Example of indoor greening

Indoor light environment is a very important part of building environment. In production, work and study places, a good light environment can inspire people's spirits, improve work efficiency and product quality, and ensure personal safety and power health. In places of entertainment, rest and public activities, light environment can create elegant, lively or solemn atmosphere, which has a

positive impact on people's emotional state and psychological feelings. Light is not only the condition of actual lighting, but also the basic element of expressing space form and creating indoor environment atmosphere.



Figure 3 Example of natural lighting with large area glass on side window

Only when natural lighting can't meet the needs, can artificial lighting be used as an assistant. For people, natural light is a kind of comfort and enjoyment. In order to obtain natural light, various kinds of openings are designed in the building envelope (such as walls and roofs), and transparent materials are placed on the exterior of the openings. These transparent openings are collectively called lighting openings. Using large areas of glass (Figure 3) on the side windows, such as glass curtain walls and large area glass windows, can make the indoor and outdoor space integrated and obtain a transparent feeling. Light is completely integrated with large area glass, showing strong attraction. In addition to the side window, a natural lighting indoor light environment with layering, vividness and emotional appeal can be created from the top lighting of vaults and domes.

6. Conclusions

With the development of modern society, the problems faced by interior design are becoming more and more complicated, and modern interior design gives future interior designers a kind of ability; A creative spirit; A concept and method of grasping environmental space. The sustainable development direction of modern interior design in China should start from design, science and technology and culture, which is the final conclusion of sustainable development. Only by realizing green and low carbon, scientific and technological innovation and cultural development can the sustainable development of interior design be truly realized.

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