

Green design of modern indoor environment

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Abstract. At the same time as the rapid development of human society, resources waste, environmental pollution, and ecological crisis are becoming more and more serious. In order to explore the path of human and nature's recyclable development, green design has guided humanity. Green interior design is to build an overall health system of people and nature. It takes a resource-saving and environment-friendly interior design path and pays attention to society. The overall interests of nature, to create a green and healthy living environment for human beings, based on the present, and more on the future. Here, the paper makes a relevant analysis on the connotation, discovery background, development status and design focus of green interior design.

1. Introduction

In the historical process of the development of human society, human beings are constantly asking for nature and consuming a lot of resources and energy. At the same time as the request, a large amount of waste produced by various human survival and production activities is discharged into the natural ecological environment, causing great damage to the ecological environment. With the advancement of science and technology, human consumption of natural resources and destruction of the ecological environment have been accelerated. The increasing ecological crisis has aroused people's reflection. "Green movement" has begun to emerge around the world, and "green thinking" has gradually formed. In the late 1980s, an international design trend emerged – green design. Under the green design trend, people further think about how to better deal with the relationship between people and society and nature.

The concept of "green" can be understood or escaped into concepts such as environmental symbiosis, ecology and environmental protection, and sustainable development. It covers: ecological and environmental protection, durability of function and use, re-development of natural energy, efficient use and recycling of resources, environmental health, safety, convenience, comfort, and overall consideration of the life cycle.^[1]

The green design concept follows the principle of people-oriented. On the basis of high efficiency, energy saving and pollution reduction, the harmonious environment of human habitation is closely integrated with the long-term development of nature. The purpose is to improve the quality of human living environment and meet the people's growing spiritual culture. Demand can promote the sustainable development of the material society.

Green interior design is to "green design" concept applied to interior design, both in terms of security to people living, practicality, comfort and aesthetics and other needs while achieving people to improve themselves through interior design. A good wish to live a living environment. Designing work under the green concept, designers must realize the transformation of traditional design concepts. Designers should put the issue of making full use of energy and reducing pollution at the top of the design, obeying the whole of man and nature, through the layout of interior space, the use of decorative materials, the adjustment of indoor physical environment, and the coordination of indoor colors. The development of the interests of the health system requires the realization of sustainable development that meets both the material and spiritual needs of human beings and the social, economic and natural environmental benefits, and creates conditions for building a better space for human survival and development in the future.^[2]

2. Development status of green indoor environment design

The green indoor environment design concept has led to a new green revolution in the field of interior design. In this revolution, there have been many new developments in the field of interior design that are conducive to sustainable development, as well as the imperfect development. There are many problems.

2.1 good aspects

First, under the wave of green design, there are many designers or designers who can integrate the green design concept into the design, pay attention to the rational use of the earth's ecological resources, and can combine the current aesthetic styles of people. The planned design and decoration plan, the scientific material processing, the orderly combination of materials, in the streamlined design, reduce various environmental pollution, improve the effective use value on the basis of effective energy conservation, and create a livable and high quality new Ecological green cultural environment. Second, under the guidance of the green design concept, the research and development of various new environmentally friendly materials have achieved significant results. Environmentally friendly materials will not only cause harm to the human body, but also have more excellent performance or composite functions, such as decorative and thermal insulation. Insulation, sound insulation, high strength, scratch resistance, water resistance, chemical resistance, etc. Third, green interior design is not just a matter for designers and engineering teams. Under the favorable guidance, more and more users are also aware of the importance of green and healthy indoor environment. More and more people have established green and environmental protection concepts, changing the past decoration hobbies and living habits that are not conducive to the environment and ecology.

2.2 Problems

First, the great enrichment of material life and the special aesthetic psychology formed under certain circumstances have caused some interior design to blindly pursue "luxury", "gentle" and "fashionable" on resources with non-renewable resources or extremely long regeneration years. For example, marble, rare wood, metal and other materials are widely used in interior decoration. In some places, decorative materials are used arbitrarily or intricately decorated to meet the needs of some users for extravagant visual enjoyment. The excessive use of such decorative materials and the improper use of decorative materials are obviously contrary to the principle of reduction, recycling and reuse in the green design concept, and it is difficult to achieve low carbonization and reuse of resources, which is not conducive to the sustainable development of society. Second, due to the temptation of economic benefits and some wrong psychology, many synthetic building chemicals that do not meet safety standards are used in interior decoration. It is only from the appearance that it may meet the decoration needs of designers and even residents, and meet the relevant performance, but the safety and environmental protection are extremely poor, which poses a great threat to human health and becomes a huge pollution source for indoor environment. Many synthetic materials can release many volatile organic substances such as formaldehyde, benzene, toluene, ethers, esters, etc. into indoor air, polluting indoor air, thus affecting the health of residents. Some of them only stimulate certain parts of the human body. Caused by discomfort, and some have been identified as serious carcinogens, damage to the body organs, brain nerves, causing serious life-threatening diseases such as lung cancer and leukemia. Moreover, from the current situation, many patients with diseases such as leukemia have become very young, and some of their causes stem from the pollution of indoor environment by indoor decoration materials. Therefore, the environmental protection of interior decoration materials is an important concern for green interior design.

Third, under the influence of the wrong commercial design trend, some audiences blindly follow the trend and constantly adjust the existing interior design, which greatly shortens the use cycle of interior design products. Redesigning the indoor space in most cases will not. When all the previous indoor materials are used, new materials will be added, and some of the original materials will be discarded. In this case, if the base is large and the frequency is high, it will cause a great waste of building decoration materials. Often, the recyclability of these waste materials is relatively poor. If

they are not used again, most of them will be disposed of, which will cause new problems. First, it takes up space, and second, it pollutes the environment. In connection with the concept of green interior design, in order to achieve a harmonious and sustainable development relationship between human and social development and nature, people should establish correct values and realize individual aesthetics within the basic scope of respecting ecological balance and safeguarding their own needs. Pursue, rather than pursuing individual aesthetics at the expense of environmental damage.

Therefore, we must attach great importance to the indoor decoration pollution design concept and the green ecological development harmonious coexistence, promote the healthy development of the interior decoration industry with the concept of green development, should focus on strengthening the designer's awareness of ecological environmental protection, promote the development of economic green low carbon cycle, and give full play to the diversity. The role of the main body, coordinate the production space, living space and ecological space in the indoor development, and continuously improve the sustainability of the people's group livability and development.^[3]

3. The focus of green interior design

3.1 Green design of spatial layout

The green space layout should be reasonable in functional partitioning, user-friendly and comfortable. When designing the interior space layout, careful consideration should be given to the type of building space, spatial scale, and spatial structure, and the corresponding design and adjustment should be made according to the actual situation. In the indoor flow line arrangement, the interlacing of the public space flow line and the private space person flow line should be minimized to ensure a proper sense of privacy; the grasp of the spatial scale should be considered in combination with both the structural factors and the human factors. In the bedroom, the space is too small. Whether it is from the furniture or from the psychological feelings of people, there will be a sense of crowding. The excessive space will not only cause waste of space, but also create a sense of openness and coldness in the mind, which is not conducive to normal sleep. The rest of the functional area should be arranged reasonably. For example, the functional areas such as kitchens and toilets with frequent use of water and sewage should be arranged as concentrated as possible to facilitate centralized installation and maintenance of the pipeline. The use frequency of the bedroom and living room is higher and the quality requirements are higher. The high functional area should be arranged in the direction of good lighting and ventilation conditions. According to the needs, the indoor space is divided into long-term elastic design and flexible design, so that the indoor functional space can be adjusted and changed, so that the indoor space can meet the requirements. Users' current needs, and more able to adapt to changes in demand that may arise in the future, to a certain extent Few large adjustments occur indoors, reducing waste and construction waste secondary pollution.

The open design of the kitchen, dining room and living room makes the small space not crowded and closed. The line of sight has a better sense of extension and feels a more comfortable space experience. At the same time, it can save part of the wall building materials and convey the green and environmental protection concept.

3.2 Green design of indoor sound and light thermal environment

The green design of the indoor sound and light thermal environment can be started from the aspects of ensuring the environment's pleasantness and improving energy efficiency. First of all, the comfort of the indoor environment is largely affected by the quality of the indoor sound and light thermal environment. The dim light will produce an embossing sensation. Long-term living in a dim environment is not conducive to human health and is not conducive to human mental health. The too bright and bright light environment is not conducive to people's rest, sleep, and even light pollution, resulting in visual fatigue and discomfort. From the perspective of environmental protection and health, the use of natural light source is the greenest and healthier. In the indoor space layout, the size of the window can be appropriately enlarged, especially the window in the

south to introduce more natural light for indoor lighting. First of all, from the perspective of human experience, natural light sources are more comfortable and natural, and are more conducive to health. Secondly, the introduction of natural light can also reduce indoor electricity consumption, save energy and reduce emissions, and protect the environment. In addition, in order to create a comfortable living and rest environment, it is necessary to ensure the relative independence of the indoor acoustic environment, and to isolate and reduce the influence of the bad acoustic environment when needed, which has high requirements on the sound insulation performance of walls, doors and windows. In addition to solving this problem with the high performance of building materials, it can also be moderated by the arrangement of the door and window openings, the size and size adjustment, and the barrier of the indoor furnishings. Finally, the indoor thermal environment should have good adjustability, the summer heat, the cold winter, the extremely changing temperature makes the indoor thermal environment become bad, in order to cope with the seasonal and climate changes, to maintain the indoor thermal environment, it is necessary to ensure the relative independence of the indoor acoustic environment, and to isolate and reduce the influence of the bad acoustic environment when needed, which has high requirements on the sound insulation performance of walls, doors and windows. . In addition to solving this problem with the high performance of building materials, it can also be moderated by the arrangement of the door and window openings, the size and size adjustment, and the barrier of the indoor furnishings. Finally, the indoor thermal environment should have good adjustability, the summer heat, the cold winter, the extremely changing temperature makes the indoor thermal environment become bad, in order to cope with the seasonal and climate changes, to maintain the indoor thermal environment, it is necessary Use building materials with good thermal insulation properties, reasonably arrange the position and size of the window, use the ventilation of the wind to reduce the size of the north window and reduce heat loss. By adjusting the thermal environment by these methods, the use of air conditioners, fans, and heating facilities can be reduced to a certain extent, so that energy saving and emission reduction can be achieved.

3.3 Green design of decoration and decoration materials

The green design of interior decoration materials can be started from two aspects, one is to pay attention to the environmental protection of decorative materials, and the other is to use natural materials. The environmental protection of materials should be reflected in the fact that the materials are not harmful to the natural environment and human health, and the materials can be recycled, reused and regenerated. To create a green indoor environment, first of all, we should ensure that the indoor environment is non-toxic and harmless. From soft furniture to wall hard work, we must pay attention to the safety of materials and not produce substances harmful to the environment and human body. Secondly, use as many recycled and recyclable materials as possible for interior decoration, reduce the use of disposable and non-renewable materials, reduce the generation of construction waste, and at the same time give full play to the designer's creative ability and turn waste into treasure. The so-called garbage utilization gives the building materials a second life, realizes the recycling of materials, reduces waste of resources, and protects the natural environment. Finally, bold use of natural materials, such as wood, rattan, bamboo, pebbles, straw, etc., to form a decorative effect.

The use of bamboo to construct the living space, and through the density of bamboo to create the opening and closing of the space, forming a unique indoor space, natural, simple and with a refined taste.

3.4 Thinking

As the main body of indoor environmental space, people should be the primary concern of interior design work. "People-oriented" is the guiding ideology of green interior design. The green interior design is a humanized design that aims to create a humanized space environment that is more convenient, more comfortable, and more responsive to people's physical and psychological needs. Regardless of the functional space layout or lighting, color decoration, physical environment adjustment should fully consider the material and spiritual needs of people. At present, the pace of people's life is gradually accelerating, and the pressure of life is gradually increasing.

Correspondingly, the indoor environment should be coordinated with it, to facilitate people's daily life, to meet people's living habits, to meet the needs of leisure and relaxation. At the same time, for special people, modern green interior design should reflect humanistic care, and provide material and spiritual care for the elderly, disabled, pregnant women, children, etc., so that they can be physically assisted, but not psychologically constitute damage.

3.5 Green plant application

In modern green interior design, the use of green plants can play the role of decorating indoor space. At the same time, green plants can also absorb harmful substances in indoor air. Some aromatic plants can also cover the smell of the bathroom, thus purifying the air. Different green plants have different growth habits and ornamental postures, and it is not appropriate to use green plants in the indoor space. First of all, it is necessary to determine whether the green plant can be used in indoor spaces, such as night primrose, which is a plant that cannot be planted indoors. In addition, understand the cultural meaning, growth habits, viewing posture, volume and size of the green plant, and determine its suitable placement space. Place the plants of Xiyin in a place with less sunlight, and place the plants of Xiyang in a sunny space; the living room can be placed in a corner of the wall to place a large amount of foliage plants, and the bedroom space cannot be placed with messy plants and huge leaves. Green plants, because of the light and shadow, will produce uncomfortable associations, which is not conducive to people's normal rest and sleep.

The use of green plants creates an indoor scene, which has a connection between indoor and outdoor, giving the interior a natural atmosphere and creating a natural ecological sense.

3.6 Scientific and technical support

Green interior design needs to rely on the support of science and technology to achieve full utilization of resources, energy conservation, environmental protection, and humanized treatment. Sound-absorbing building materials, thermal insulation building materials, solar panels, energy-saving lamps, soilless cultivation techniques, computer technology, automatic control technology, network technology, intelligent systems, etc. all provide technical support for modern green interior design, while green interior design is not a solidified design pattern, which is a concept of development. As the exploration deepens, it will summarize the more perfect design theory for humans and guide people's design. At the same time, further development and technical support of science and technology are needed.

4. Conclusion

In summary, the green interior design is based on the design background of the current era. It is based on the present, and is more focused on the future, striving to achieve sustainable development of people and nature, saving resources, reducing waste, reducing pollution, protect environment. It can achieve green design through space layout, environmental decoration, physical environment adjustment, humanized design, etc., but it is not a solid design pattern, it needs to grow, and it motivates its growth, which is what every designer should shoulder. On the road of green interior design, we still need to constantly explore and explore new directions and new ideas.

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