



Application of Decomposable Materials in Interior Design Based on the Concept of Green Ecology

Qichao Song^(✉)

Daegu University, 201 Daegudae-ro, Jillyang-eup, Gyeongsan-si, Gyeongsangbuk-do, South Korea

songqichao0511@126.com

Abstract. With the rapid development of the economy, the concept of green ecology has become the mainstream idea in people's lives. In this environment, the application of decomposable materials is worth exploring and researching. In this article, we will discuss the application of decomposable materials in interior design. The application in the paper is analyzed, and the more popular concept of green ecological design is also illustrated with specific cases.

Keywords: ecological concept · green material · interior design · sustainable development

1 Introduction

With the development and progress of human society and the gradual popularization of modern technology, various serious ecological and environmental problems have also emerged. The environmental protection department is facing severe challenges, and the development of CCB's design industry is also the same. In today's society, people generally use a wide variety of building materials and design materials to build houses that people think they are satisfied with, but they do not consider that building and design materials will also cause certain pollution, which is a potential hidden danger to our living environment. However, countries have now recognized this serious problem. At the same time, both the general public and the construction industry have certain requirements for the pollution that materials may cause [1]. Therefore, the concept of green ecological design has gradually become a popular and advocated concept, which will become the key direction of interior design in the future.

2 Overview of Green Interior Ecological Design

Green interior design should pay attention to the reusability of materials. From the material itself, it has the property of reusability. At the same time, the material must also be able to be applied to actual design and construction. Some use values are not

only environmentally friendly, but also practical, and can be recycled and reused [2]. A long time ago, there was a related work similar to the idea of green interior ecological design - “Designing for the Real World”, which mainly explained that the application of architecture in commercial value is important, but at the same time, its development direction is To be in line with society and ecological development, both must be taken into consideration at the same time. In recent years, frequent outbreaks of energy crises have forced people to speed up the implementation of “green ecology”. Similarly, the concept of advocating green has been continuously implemented in the construction and design industries. Therefore, green interior ecological design is a big Trends are also things that we have to start implementing.

3 The Main Problems in the Current Interior Design

Although green interior ecological design has been advocated all the time, there are too many factors hindering its development, and it has not been paid enough attention. At present, there are still problems in my country’s interior design. For example, first of all, I like to pursue the so-called fashion and good-looking, and I especially like to use luxurious decoration materials such as natural marble. However, the excessive use of such non-renewable resources will damage the environment. Cause damage and is not conducive to sustainable development. Secondly, the excessive use of artificially synthesized chemical materials will cause great harm to the indoor environmental health. It will contain carcinogens, such as formaldehyde, benzene, etc., and the volatilization period will be as long as 15 years [3]. The harm of indoor formaldehyde is particularly serious. And there are many indoor materials that contain formaldehyde. Let’s look at a timetable for the volatilization of formaldehyde in indoor items. Table 1 shows the formaldehyde content diagram.

It has caused great harm to the health of the living environment. Moreover, many house owners like to redecorate every few years and constantly change the decoration style. In this way, the demolished building materials will be discarded and finally become a building. Garbage pollutes the environment, and the resource of this building material is also wasted.

Table 1. Indoor formaldehyde control table (self drawn)

Formaldehyde in indoor items	Formaldehyde volatilization time
wall paint	7–15 days
wallpaper glue	over 18 months
latex paint	over 5 months
Big core board	15 months–5 years
Density board veneer	More than 3 years–15 years

4 The Main Idea of Green Interior Ecological Design

The most important thing about green design is to protect the health of people's living environment, and to conform to the concept of social and ecological healthy development [4]. The following aspects are particularly prominent: ① Do not over-pursue luxurious materials and luxurious decoration styles, because a large number of non-renewable materials and chemically synthesized materials will be used. It should be advocated to create a green, healthy and environmentally friendly living concept and design style. ② Integrate the indoor environment with the natural environment. When designing, use natural light, a "material" bestowed by nature, to design indoor lighting, and in terms of indoor ventilation, it must have an ecological aesthetic style. ③ When using design materials, it is necessary to choose materials that are conducive to the development of the ecological environment and reduce the use of non-renewable resource materials.

5 Application of Green Ecological Design Concept in Interior Design

5.1 The Inevitability of Application of Green Ecology in Interior Design

The most basic aspect of interior design is to design the health of the indoor environment. The indoor environment is the place where the owner of the house lives. Comfort and safety are the key factors in interior design. When these conditions are already present in the interior, we can focus on Regarding the elements of green ecology, health factors should be given top priority in interior design [5]. The most important factor affecting health is the use of design materials. Selecting decomposable and recyclable materials is the basis for ensuring health.

5.2 Principles of Green Ecological Design Concept in Interior Design

The indoor environment is inhabited by people, so the design of the indoor environment should be designed around people. The design is not only reflected in the designer's brush and a few design drawings, but also what materials should be used after the design is completed. When carrying out decoration, it is more necessary to consider whether the decoration materials conform to the concept of green ecological design and whether they are beneficial to the health of the occupants. In terms of material planning, factors such as the cost performance, pollution, and whether the materials are renewable must be taken into consideration [6].

5.3 Harmony Between Man, Nature and Environment

Human and nature are closely related and inseparable. When designing interiors, we must consider the harmonious and unified relationship between indoors and outdoors, human and nature, and indoors and nature. In the selection of interior design materials, whether it is in line with the favorable development of nature, and whether it respects the law of harmonious development between man and nature. The interior design should be truly "green", achieving the harmonious coexistence between man and nature and sustainable development [7].

5.4 Energy Saving and Emission Reduction

Energy issues should also be considered in green ecological design. Similarly, interior design should also start to take this issue into consideration through design plans, for example, how to design reasonable use of water, electricity, natural gas, sunlight energy, room lighting strategies, etc. etc., while saving energy, reduce the discharge of environmental pollution. At the same time, it is necessary to make more use of decomposable and non-polluting materials in the process of design and material selection.

6 Application of Green Environmental Protection and Energy-Saving Materials

The selection of materials can effectively reduce the waste of resources and protect non-renewable resources. Therefore, in the design, environmental protection materials and decomposable materials should be selected first, and non-renewable materials should be avoided to avoid waste of resources. Reduce environmental pollution and realize the rational allocation and use of resources. In addition, in the process of design, reasonable planning and selection of materials should be made in consideration of the actual situation such as the layout and area of the space, and non-renewable materials should not be excessively used in pursuit of a luxurious sense of luxury, and renewable materials should be used as much as possible, recyclable materials, which can be used for secondary use without damage. In addition, it is inevitable that some construction waste will be produced during interior decoration. Under normal circumstances, these waste materials can be recycled and reused, which not only saves money, but also saves resources [8].

6.1 Design of Indoor Lighting

Reasonable indoor lighting can make the occupants happy physically and mentally. There are natural lighting, artificial lighting, and natural lighting. The sunlight should be fully



Fig. 1. Design display diagram of energy-saving materials (self drpwn)

utilized to bring the light into the room. As shown in Fig. 1, the floor-to-ceiling windows are designed to allow more sunlight to shine into the room, the overall brightness of the indoor environment has been greatly improved. Through the glass, you can also see the scenery outside. Through the reasonable use of natural light, the occupants' living mood in this environment is also more comfortable. When designing indoor artificial lighting, it is necessary to consider the orientation of the room, the indoor sunlight area and the sunshine time, and consider factors such as the distance between buildings. Combining the above factors, interior designers should consider green interior design and energy conservation and environmental protection, design the indoor artificial lighting, and design the light tone of the room according to the layout of the room and combined with the outdoor light [9].

6.2 Design of Indoor Ventilation

People spend most of their time indoors, and the air they breathe comes from indoors. Therefore, the indoor air quality is very important to human life. The most effective way to improve the indoor environment is to start from the source, which is reasonable [10]. Design indoor ventilation to make the ventilation effect smoother. Ventilation design is not only a simple design, but also a major premise to ensure that the interior design uses non-polluting materials and does not contain formaldehyde, benzene and other carcinogens.

6.3 Arrangement of Indoor Green Plants

When the interior design comes to an end, some green plants, such as dill, can purify the air and set off the environment. While enriching the color of the room, it can make the room more vibrant and make the occupants feel happy physically and mentally, as shown in Fig. 2 show.



Fig. 2. Indoor green plant layout (self drawn)

7 Conclusion

Green ecological design is not only a design pattern, but also a sustainable development concept of life. Too much pursuit of fashion, luxury, and high energy-consuming design orientation has been difficult to meet the actual needs of social development. We should vigorously advocate the green ecological design style with energy conservation and environmental protection as the main idea, and create a more energy-saving, ecological, and comfortable indoor living environment. It is not enough to rely solely on the individual efforts of interior designers, and requires all-round support from the government, industry, media and owners.

References

1. Liu W. Preliminary Study on Interior Ecological Design [J]. *Journal of Yibin University*, 2005(1):122–124.
2. Shen L D. Sustainable Development Thinking in Interior Design—Indoor Ecological Design [J]. *China Building Materials Science and Technology*, 2006(12):55–57.
3. Li L J. Indoor Ecological Design [J]. *China Building Materials Science and Technology*, 2007(1):55–57.
4. Liu Z L. Preliminary Study on Interior Ecological Design [J]. *Wisdom*, 2008(12): 231–232.
5. Ou Suiliang. Thoughts on Ecological Design of Interior Decoration [J]. *Modern Decoration*, 2015(11): 24.
6. Liang G W. Analysis of landscape reconstruction strategy under Green ecological network construction [J]. *Modern Horticulture*, 2022,45 (24): 63–65.
7. Zhang Z. Application of green, ecological and low-carbon construction concept in night view lighting design [J]. *Light source and lighting*, 2022 (S1): 29–30 + 36.
8. Cao X J, Wei Y H, Sui Y. Research on data management technology of information resource sharing and exchange in green eco-city [J]. *Quality and Certification*, 2022 (10): 82–84.
9. Fan S H. Building a green ecological barrier to promote high-quality urban development — Thoughts on the five-year construction practice of green ecological barrier in Tianjin [J]. *Knowledge*, 2022 (10): 56–58.
10. Wang J Y, Rao H. Thoughts on the improvement of ecological landscape in the green ecological planning of Mokou Historical and Cultural Protection Area [J]. *Urban building space*, 2022,29 (08): 18–21.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

