Application of Interior Decorative Art and Green Building Materials in Commercial Space Design

Xiuyun Li
School of Art, Graduate University of Mongolia, Ulaanbaatar 999097, Mongolia.

Abstract: The paper aims to explore the application of interior decorative art and green building materials in commercial space design. Through an analysis of the design requirements of commercial space, the characteristics of green building materials, and the display methods of interior decorative art, three typical commercial space design cases are selected to illustrate the advantages and disadvantages of decorative art and green building materials in engineering applications, demonstrating a green, environmentally friendly, and beautiful commercial space design concept, which providing reference value for the promotion of green building materials in commercial space art design.

Keywords: Decoration Art; Green Building Materials; Commercial Space Design

1. Introduction

With the development of the economy and the increasing awareness of environmental protection, green building materials and interior decorative art are becoming more and more important in commercial space design. The paper will explore the application methods and advantages of green building materials and interior decorative art in commercial space design[1].

2. Design Requirements of Commercial Spaces

2.1 Space Utilization

Space utilization is a key factor in measuring the effectiveness of commercial space design. Excellent commercial space design should fully consider the rational use of space, ensuring that each functional area is fully utilized within limited space. By using methods such as reasonable planning, innovative spatial layout, and multi-functional furniture, space utilization can be improved, making commercial spaces more attractive and competitive.

2.2 Functionality

Commercial space design needs to meet the basic functional requirements of space, such as traffic flow, facility layout, and personnel movement lines. Designers should refine functional areas according to the nature and operational requirements of commercial spaces, plan space layouts rationally, and ensure the efficient operation of space functions.

2.3 Aesthetics

Aesthetics is an important part of commercial space design. A commercial space with good visual effects can attract customers and enhance the brand image of the space. Designers should pay attention to aspects such as color matching, material selection, and modeling design to create commercial spaces with unique aesthetic characteristics[2].

2.4 Comfort

Comfort is an important indicator of measuring the quality of commercial space design. Designers should pay attention to aspects such as lighting, ventilation, sound insulation, indoor climate to meet people's comfort needs in commercial spaces. In addition, reasonable spatial layout and humanized design details also contribute to improving the comfort of commercial spaces.

2.5 Environmental Protection

Environmental protection is becoming increasingly important in modern commercial space design. Designers should actively use green building materials to reduce indoor pollution. Meanwhile, by using green elements the goal of environmental protection and energy conservation in commercial spaces can be achieved[3].

3. Characteristics and Applications of Green Building Materials

3.1 Characteristics of Green Building Materials

Green building materials have the characteristics of low carbon, environmental protection, renewable and energy-saving, which give green building materials significant advantages in commercial space design and contribute to achieving the goal of sustainable development.

3.2 Selection and Application of Green Building Materials

The selection and application of green building materials are crucial in commercial space design. Firstly, non-toxic or low-toxic green building materials should be prioritized, as they have minimal impacts on human health and the environment, and help to improve indoor air quality. Secondly, recyclable building materials such as metal and glass should be selected, which reducing resource waste and increasing material recycling rates. Lastly, building materials with good thermal insulation and heat preservation properties, such as polyurethane insulation boards and rock wool should be chosen to improve the energy efficiency of commercial spaces and reduce energy consumption[4].

4.Display Methods of Interior Decoration Art in Commercial Space Design

As an important element in commercial space design, interior decoration art can be displayed in various ways, such as art placement, space layout, and color matching. Combining green building materials to achieve a perfect integration of interior decorative art and commercial space, thereby enhancing the aesthetic value and environmental performance of the space.

4.1 Artwork Display

Art is an important carrier of interior decoration art, and various unique and environmentally friendly art pieces, such as sculptures, murals, and installation art, can be displayed to enhance the artistic atmosphere of commercial spaces. Selecting works of art made of environmentally friendly materials that recycled metal and waste wood helps emphasize the green concept of space.

4.2 Space Layout

Space layout is crucial in commercial space design. Optimizing the layout can satisfy functional needs while highlighting the characteristics of interior decoration art. For example, by arranging furniture, plants, art pieces, and other

elements reasonably, a space with a sense of hierarchy and dynamics can be created, which enhancing the comfort and aesthetics of the space[5].

4.3 Color Matching

Color is a key factor in interior decoration art, and reasonable color matching can adjust the spatial atmosphere and make it more attractive. In commercial space design, it is possible to create a pleasant spatial atmosphere by using green building materials such as environmentally friendly paints and wallpaper, as well as matching natural and harmonious colors. The integration of interior decoration art and green building materials in commercial space design not only displays the artistic value of the space but also emphasizes the green concept.

5. Case Analysis of Interior Decoration Art and Green Building Materials in Commercial Space Design

There are many successful cases of green building materials in commercial space design. For example, the implementation of green lighting, such as using energy-efficient lighting devices like LED lights, can reduce energy consumption and carbon emissions. Additionally, in furniture selection, choosing environmentally certified furniture, such as FSC certified wood furniture, there is less adhesive and extremely low formaldehyde content, thereby reducing the release of indoor pollutants[6].

5.1 Case One: Green Shopping Mall

In the design of a shopping mall, green building materials and interior decoration art are fully utilized. The floor decoration uses environmentally friendly bamboo flooring, and the walls use low VOC paint and LED lighting. In addition, the commercial center has a reasonable spatial layout and abundant green plants, which creating a comfortable shopping environment. The shopping center has high passenger flow and good reputation in actual operation.

Advantages: Highlight the energy-saving and environmental protection performance of the space, reduce energy consumption, and improve consumer satisfaction.

Disadvantages: The cost of green building materials is relatively high, and the investment return period is longer[7].

5.2 Case Two: Ecological Restaurant

An ecological restaurant uses a large amount of recycled wood, stone, and other green building materials during decoration, and fully displays natural elements and artistic sketches in the interior decoration. The space layout fully considered customers' dining experience, making the restaurant a unique and environmentally friendly space.

Advantages: Unique design style and environmental concept attracted many customers and improved brand image.

Disadvantages: Perfectly combining interior decoration art with green building materials requires novel design concepts, resulting in high design costs.

5.3 Case Three: Green Office Building

A company's office building was designed using green building materials, such as rock wool insulation boards, low VOC coatings, and embodied interior decoration art in terms of spatial layout, color matching, and artwork placement. These measures have improved the environmental performance of office buildings, while adjusting the working attitude of employees.

Advantages: Optimize the working environment of employees, playing a role in sound absorption and noise reduction,

reducing energy consumption, and improving work efficiency[8].

Disadvantages: Maintaining and updating green building materials and interior decoration art may require more effort and cost.

Conclusion

The combination of green building materials and interior decoration art can improve the environmental performance, energy efficiency, aesthetics, and attractiveness of commercial spaces, which creating a more competitive brand image for businesses. However, the design concept also faces challenges in practical applications such as high cost, difficulty in original creation, high design requirements, frequent updates and maintenance[9]. To overcome these difficulties, it is necessary for governments, businesses, and designers to work together to promote the development and cost reduction of green building materials, improve design levels, and actively explore the best practices of green building materials and interior decoration art in commercial space design. In summary, combining interior decoration art with green building materials for commercial space design is a design concept with broad prospects and practical value, which is worthy of sustained attention and promotion by society[10].

References

[1] Kibert CJ. (2016). Sustainable construction: green building design and delivery. John Wiley & Sons.

[2] Zhou Y. (2020). Analysis of the Application of Decorative Art to Interior Space Design, Art Review. (12):166-167.

[3] Wang L, Toppinen A, & Juslin H. (2014). Use of wood in green building: a study of expert perspectives from the UK. Journal of Cleaner Production, (65):350-361.

[4] Karatas A., & El-Rayes K. (2015). Optimal design of sustainable buildings: integration of life-cycle costs, environmental impacts, and occupant satisfaction. Journal of Architectural Engineering, 21(4):04015001.

[5] Shen GY. (2021). Research on the Simple Style of Modern Interior Decoration Art Design, Chinese Architectural Decoration. (06):84-85.

[6] Lu JW. (2017). Simple Style Analysis of Modern Interior Decoration Art Design, Science and Technology Economy Market. (12):14-15.

[7] Lam KP, Wong NH, & Tsang SW. (2014). A review of sustainable urban design concepts for high-density, high-rise environments. Architectural Science Review, 57(1):2-16.

[8] Feng NC. (2016). Application and Practice of Decorative Art in Interior Design, Jiangxi Building Materials. (06):60-64.

[9] Chen Y, Okudan GE, & Riley DR. (2010). Sustainable performance criteria for construction method selection in concrete buildings. Automation in Construction, 19(2):235-244.

[10] Lee WL, & Burnett J. (2016). Benchmarking energy use assessment of HK-BEAM, BREEAM, and LEED. Building and Environment, 41(11):1516-1525.

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