

Research on Innovation Strategy of Residential Interior Design under Low Carbon Concept

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Abstract: With the improvement of economic level, people pay more attention to the relation between the house and the surrounding environment, which can reduce the influence of the house design and construction on the surrounding environment. Low-carbon concept as a new design concept, in the process of residential design focus on energy-saving consumption, can enhance residential comfort, and meet the green energy-saving design needs. Therefore, the article will outline the low-carbon residential interior design concept, analyze the current situation of residential interior design, and put forward the low-carbon concept residential interior design scheme to promote the development of interior design in China.

1. Introduction

Interior design is an important way to improve the residential comfort, which can affect the interior decoration design effect and energy utilization status[1]. At present, there are still many problems in the process of interior design in our country, such as unreasonable design concept, inappropriate material selection, high energy consumption of design scheme, and not in line with modern low carbon design concept. Designers in the residential interior design, if the concept of low-carbon integration, can improve the quality of life owners. It can be seen that it is necessary to study the innovation strategy of low carbon concept design in residential buildings.

2. Interior Low Carbon Design Overview

Low-carbon concept: refers to low-carbon emissions, involving social, cultural, economic, cultural and other aspects, and derived from the low-carbon life, low-carbon energy, low-carbon design, low-carbon economy and many other concepts, has been accepted by the majority of people. The core of low carbon concept application is to use low carbon energy saving technology, environmental protection technology, energy technology to increase carbon sink and reduce carbon emissions at the same time.

Residential interior design: refers to the design of residential interior space, and to meet the needs of owners living in the use of functions, visual senses and other aspects[2].

The low-carbon concept is applied to residential design, and the design technology and design materials are innovated to study the indoor functional characteristics in depth and to grasp the relationship between indoor and outdoor, which can achieve full low-carbon design and conform to the modern design concept (Fig .1). At present, in the research of low-carbon design, low-carbon design is divided into environmental design, space design, decoration design and interior furnishings, and with the help of high-tech, it can improve the low-carbon performance and environmental protection performance in the material and design scheme to meet the requirements of modern environmental protection and energy-saving living.



Figure 1 Modern design concept

3. Analysis on the Current Situation of Residential Interior Design

3.1. Space Design

Space design is the basis of residential interior design, and also directly determines the use of each space effect. The importance of space design requires designers to have a good sense of space design, without affecting the owner's living needs, improve the efficiency of space use, enhance its storage capacity. Under the demand of low-carbon design concept, designers should integrate low-carbon concept in space design, carry out accurate measurement of residential interior, plan space reasonably and reduce space waste. However, at present, the interior design of residential buildings in our country does not do this, designers in the design process are mostly to apply the design template, interior design lack of innovation, many residential interior space design is unreasonable phenomenon.

3.2. Material Selection

The material is indoor living in the main consumables part of decoration, need to consume a lot of cost. In the design stage, designers need to fully consider how to choose materials, balance the value and properties of materials, but also to prevent material pollution and reduce energy consumption. At present, the interior design materials of residential buildings in China are still quite chaotic, and the quality, price and performance of materials are not uniform, so it is necessary for designers to grasp the materials[3]. However, in practical design, some designers choose low quality materials in order to compress the design cost, which leads to the substandard quality of indoor materials, which not only consumes a lot of building resources, but also endangers the life and health of the owners. For example: poor floor material formaldehyde exceeding the standard, after its application in the interior design, will release formaldehyde and other harmful gases for a long time, damage the owner's health.

3.3. The Design of Furnishings

Furnishing design refers to the display design of indoor items, which should not only meet the needs of the owner's goods display, but also enhance the beauty of the interior, in line with the owner's aesthetic values. Under the background of low-carbon design concept, it is required to integrate low-carbon elements into residential interior furnishings design to reduce energy waste and improve interior design level and environmental quality. There are still many problems in the traditional interior design in our country, the designer has the phenomenon of single and templated design in the design process, ignoring the owner's individualized design requirements. Some designers in order to enhance the interior design effect, will use a large number of lighting to create

a bright effect, not only wasted a large number of resources, but also will cause light pollution, owners after a long period of residence will produce dizziness, headache and other phenomena.

4. Indoor Low Carbon Design Scheme

4.1. Optimization of Space Design

Under the concept of green low carbon energy saving and environmental protection, we need to pay attention to its environmental protection, meet the demand of high efficiency utilization, and improve the beauty of space utilization at the same time. Designers need to change the concept of design, integrate low-carbon elements into space design, and personalized design according to the needs of the owner, so as to enhance the functional, aesthetic, scientific and environmental protection of space utilization, and avoid wasting indoor space. In order to meet the storage needs of the owners in their daily life, designers need to perfect the space layout, improve the utilization rate of space storage, and avoid the problem of design defects in the feedback space of the owners after use. In view of the problem of low utilization ratio of designers' space in traditional design, designers need to grasp the proportion of each space and divide it accurately.

When conducting low-carbon space design, designers can use the following methods to design: first, accurate measurement. Designers in the design of space design plan, must go to the field survey, to obtain accurate data. Second, design communication. The designer needs to communicate fully with the owner before, during and after the design to meet the individual space layout needs of the owner. Third, low carbon design. Owners in the design need to separate each functional area to protect its storage function. Such as living area, work area, entertainment area, health area, kitchen area are reasonably divided to ensure that each area space size can meet the basic needs of use, thereby improving space utilization[4].

It is also necessary to pay attention in the process of residential interior design, the large space residential interior design process, can meet the vast majority of space interior design needs, but the small space residential interior design process does not have enough space for multi-function design. Therefore, designers need to grasp the relationship between the various functional areas in the design process, if necessary, need to repeatedly use the same part of the space, synthesize different spatial functions, so as to play the role of space design and enhance the overall function of the residence.

4.2. Selected Design Materials

Materials affect interior design decoration cost, environmental quality and use safety. Based on the concept of low-carbon design, designers need to combine the design scheme, input cost, owner demand three elements to select the design materials carefully. Furniture is the most consumed material, designers should try to choose low-carbon, environmentally-friendly and cost-effective materials to reduce indoor air pollution, designers can choose manufacturers with production qualifications and environmental certification to buy furniture materials, not only to ensure its quality, but also to improve its service life, meet the concept of low-carbon use[5].

After the selection of materials into the field, designers also need to check the materials to ensure that the actual distribution of materials with the predetermined material specifications, quality. If conditions permit, designers can carry out environmental inspection of furniture, if harmful ingredients exceed the standard, need to be replaced in time. In addition, in the selection of furniture materials also need to take into account other needs, such as earthquake resistance, fire resistance needs, comprehensive understanding of the building structure on the basis of low-carbon design, to avoid wasting building materials.

4.3. Reasonable Arrangement of Furnishings

Residential interior furnishings layout includes hard decoration and soft decoration two parts, furniture is a part of hard decoration, designers first consider a variety of factors, make full use of space size, choose and layout function needs suitable furniture, meet its use function, improve the

quality of residents living. Furniture furnishings need to follow certain rules, according to the design plan to put. Different functional areas for furniture performance requirements are also different, kitchen home should pay attention to waterproof, to prevent moisture vapor on the performance of furniture; living area, entertainment area furniture to ensure its comfortable effect, to provide a comfortable living environment for the owners.

Soft decoration mainly includes wallpaper, lighting and other parts, designers in the process of soft decoration design, need to take into account the consistency of the overall style. Based on the concept of low-carbon design, designers can adopt the following measures in the process of soft decoration design: first, choose curtains made of natural flax; second, use energy-saving lamps; third, use diatom mud to paint walls (Fig .2). In the process of soft decoration design, we should avoid excessive complexity and miscellaneous, do not blindly pile up decorative materials, let alone blindly waste materials in order to pursue gorgeous effect, so as to ensure the aesthetic and practical consistency of decorative articles[6].

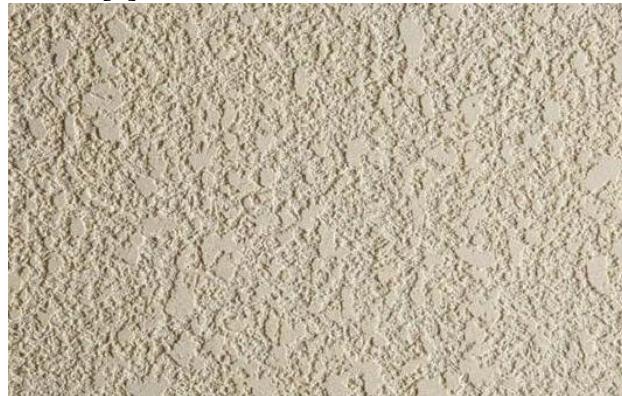


Figure 2 Diatom mud

There are many different styles in interior decoration and furnishing design, such as minimalist wind, European wind, industrial wind (Fig .3), applying the low carbon concept to it is not conformist, but should be flexible and flexible, so as to achieve the consistency of aesthetic, function and low carbon.



Figure 3 Industrial winds

5. Conclusion

To sum up, the concept of low-carbon design is a new direction of residential interior design, emphasizing the environmental protection, functionality and scientific interior design. Designers should adhere to the low-carbon concept in the design process, fully consider the owner's living needs, reasonable space design, careful selection of building materials, control of interior furnishings design, optimization of architectural performance, give owners a new living experience.

Designers should actively innovate when carrying out architectural design, integrate the low-carbon concept into the interior design skillfully, thus enhance the design level, conform to the trend of social development, and let the interior design of residential buildings really serve the society and play its design role.

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