Application of Environmental Protection and Energy Saving Technology in Building Decoration Engineering

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Abstract. On the road to sustainable development, the concepts of energy saving and environmental protection are deeply rooted in people's hearts, and their technology has penetrated into all aspects of life. Like the construction industry, with the advancement of environmental protection and energy-saving technologies, the prospects for development will also be huge. Many materials used in construction projects can cause pollution. Although environmental protection technology is supported, its technology cannot remain unchanged. Technical researchers must reduce the risks of materials and continue to innovate and develop environmentally friendly technologies. Only in this way can we continue to make progress, ensure that we have a high-quality construction project, and ensure that energy conservation is consistent with social development. Therefore, to use the qualified construction methods adopted for the renovation project, you can use what you have now and ensure its ecological and human safety. Reduce material costs and reduce environmental pollution caused by indoor raw materials. As a basic framework, it combines the definitions of modern environmental protection and energy-saving technologies, and effectively applies environmental protection and energy efficiency technologies. Decoration and decoration of energy-efficient buildings. Adopt environmental protection technology, rationally use various energy-saving and environmentally-friendly materials, and raise awareness of energy conservation and environmental protection. In addition, in-depth discussion and analysis of energy-saving management of building materials and equipment are also conducted. The goal is to improve the awareness of energy conservation and environmental protection in building decoration projects and lay a solid foundation for creating an environmentally friendly and energy-saving living environment. Experimental research results show that people do not know enough about the application of environmental protection and energy-saving technologies in building decoration projects. Therefore, we must increase publicity to let people know better, and we must also increase efforts to innovate in order to better implement and apply. People and regions have better development.

Keywords: Environmental Protection and Energy Saving Technology, Building Decoration, Decoration, Engineering, Green Environmental Protection.

1. Introduction
With the progress of China's urbanization, my country's environmental, environmental and resource problems have become increasingly serious. Environmental issues have become a common concern. Now, the consciousness of protecting and protecting energy has become the basic idea of social survival and development. In the current Chinese construction industry, energy-saving building materials are used more and more widely, and building decoration is gradually developing [1]. Energy
conservation and environmental protection, especially in the use of energy-saving materials, use decoration materials in strict accordance with relevant standards and standards to optimize environmental protection and energy conservation. The application of technology can not only improve people's quality of life and the environment, but also will not adversely affect human health [2]. Therefore, in order to be able to create clean and convenient construction products, meet the people's living needs, and promote the development of China's construction industry in the world market in a stable direction. I realized that in order to save more resources, energy conservation and environmental protection must also be applied to the building decoration industry [3].

In recent years, the concept of environmentally sound construction has gradually developed. In the subsequent construction process, as the promotion and construction index to promote and achieve the common goal, energy conservation and emission reduction must be used [4]. Construction and development. Environmental protection and energy-saving technologies are achieved through reasonable technical means, including lighting, lighting, heating structures, etc., taking into account the specific requirements of environmentally friendly building methods, and through effective design, construction, and management methods to achieve [5]. The realization of this technical concept can reduce the impact on the environment and create a more comfortable environment for the residents. With the acceleration of industrialization, although our living standards have been greatly improved, our activities have also brought serious damage to the environment in which we live, and various natural changes are reminding us of the importance of environmental protection [6]. In order to improve our living environment and protect the ecological balance, our country has vigorously carried out environmental protection work. In this context, the construction industry has gradually shifted from traditional high-polluting industries to low-carbon technologies and environmental protection. Whether it is in building construction or in the later decoration and decoration, more attention is paid to the application of energy-saving technology [7].

Decoration is the main part of the construction of a building project, and it is also a complex task. It not only includes the control of materials, personnel, equipment, etc., but also pays attention to the degree of combination of various decoration links, so as to control the construction quality of the project [8]. Although our country's construction industry is constantly introducing innovative technologies, it has always been developing in extensive construction methods. This will cause environmental and energy losses, which is not conducive to the strategic policy of sustainable development [9]. The so-called environmental protection and energy-saving technology is to combine modern technology with concepts and improve the specific links in the construction process. For example, lighting, daylighting, heating, and maintenance work can all efficiently apply environmental protection and energy-saving technologies. Through the innovative design of traditional construction technology, it can better promote the environmental protection in the process of project development, avoid unnecessary energy loss, and build a comfortable and environmentally friendly living environment for people [10].

2. Method

2.1. Calculation Method of PDSI

The calculation method of PDSI is as follows:

Firstly, an environmental suitability is defined to represent the most suitable environmental suitability theoretically:

\[ \hat{p} = E_T + R + R_0 + L \]  (1)

Among them, \( E_T \), \( R \), \( R_0 \), and \( L \) are the air quality, precipitation, air humidity and air oxygen content of the area respectively, which are calculated by the environmental suitability formula. After the environmental suitability of the area is calculated, the actual environmental suitability \( \hat{p} \) is measured by the station, and the environmental suitability difference \( D \) of the area is calculated:
According to D, the Z component of PDSI can be calculated:

\[ Z_i = d_i K_i \]  

(3)

Where \( Z_i \) is the Z component value of the environment, which \( d_i \) is the difference of the environmental suitability of the area, calculated by the following formula \( K_i \):

\[ K_i = \frac{14.2}{\sum D_i K_i} \]  

(4)

Where \( K_i \) is the environmental suitability coefficient initially determined by experience, and D is obtained by using the calibration cycle for each absolute value determined. The final PDSI obtained by \( Z_i \):

\[ PDSI_i = \frac{Z_i}{3} - 0.897 PDSI_{i-1} \]  

(5)

2.2. Selection and Application of Environmental Protection and Energy Saving Materials

The use of energy-saving and environmentally-friendly materials is an important part of building decoration projects, helping to reduce the consumption of building materials, prevent material waste, and improve the efficiency of the entire decoration project. At present, waste complete sets of fibers, ultra-low emissivity glass materials, new foam glass, energy-saving lamps, energy-saving lighting systems and other materials are widely used in environmental protection and energy saving. This will not cause serious environmental pollution. Because our country is a big agricultural country, the supply source of plant fiber is very rich, and the quantity is also large, which has the value of wide use. There is a thin film on the surface of low-e glass, which can block all kinds of radiation generated by the sun, and only transmits visible light, ensuring good heat preservation and heat insulation. Foam glass itself has many advantages, such as warmth, heat insulation, and sound absorption. As a new type of clean and energy-saving lighting material, it is widely used in various industrial sectors in our country, and the light they radiate can create the best visual effects by itself. In addition, we must also pay attention to the selection of green decorative materials, that is, we should pay attention to the selection of non-toxic, harmless, and non-polluting decorative materials. These materials have environmental protection certificates issued by relevant national structures and have been greatly promoted and promoted. Green panels such as fiber-reinforced calcium silicate boards and mirror glass panels for environmentally friendly decorative materials, as well as green furniture such as rattan, bamboo, and solid wood.

2.3. Promotion and Application of Green Raw Materials

In the process of building decoration, the choice of raw materials is the most basic link and the most critical factor affecting the overall quality. Therefore, before the start of the project, the construction unit should fully understand the design plan and quality requirements, and carry out corresponding consideration and analysis based on the actual situation, and repeatedly check the amount of raw materials through calculations to ensure the accuracy of the calculations. This is to control the construction and quality of raw materials. Cost in use, to ensure cost control and effective cost saving, improve overall quality, and eliminate waste. In addition, it is necessary to strengthen the transportation and unloading of raw materials to avoid material damage caused by operational errors, effectively control the waste of funds of the construction unit, and promote the construction of raw materials in the best condition. Secondly, in the design and construction, we must increase the application of environmental protection materials to ensure the green environmental protection requirements of urban construction and the goal of sustainable industrial development. Due
to the low cost, the components of disposable coatings contain more harmful substances. These harmful substances will volatilize into the atmosphere and have a direct impact on the surrounding air. That is, after the air is dried, more harmful substances will be left, and the people living in it will have a greater impact on the human body. In addition, many building materials, due to their own characteristics or quality problems or improper construction, will cause surface peeling, deformation, and decay, which will shorten their service life, especially for cheap materials. Therefore, the construction unit should select the corresponding products in accordance with the corresponding construction environment, market, and design requirements to avoid improper use of raw materials.

3. Experiment

3.1. Subjects

The subjects selected for this experiment are citizens of four different grade communities in a certain street to conduct a sample survey. Through a questionnaire survey of some citizens, we can understand the types of raw materials used by the citizens for decoration and their advantages and disadvantages. Finally, collect statistics, integrate the data, and analyze the current deficiencies of the citizens for the raw materials used for decoration. It is worthwhile to improve, what aspects need to be promoted. The questionnaire survey is a paper questionnaire in the form of a questionnaire survey conducted for citizens of four different grades of communities. Each community has 50 citizens, with a total number of 200 people. The conclusions drawn through data analysis put forward appropriate suggestions on the application of environmental protection and energy-saving technologies in building decoration projects, and provide new ideas and directions for the application and development of environmental protection and energy-saving technologies in building decoration projects. While developing it better, let the people of the society enjoy the professional services of applying environmental protection and energy-saving technologies to architectural decoration projects and experience improving people's quality of life.

3.2. Experimental Design

This experiment uses paper questionnaires to conduct surveys, edit the questionnaires and distribute them to all selected surveyors. This time there are 200 questionnaires, and 200 were actually collected. The questionnaire was used to investigate the grade of decoration materials and whether the living experience after decoration was satisfactory. The collected questionnaires are processed and analyzed, and the current citizens' views on the raw materials used in decoration are obtained by statistical and comparison methods, and the development problems encountered in the application of environmental protection and energy-saving technologies in building decoration projects are obtained. Based on these problems, find out new breakthroughs in the application of environmental protection and energy-saving technology in building decoration projects.

4. Results

Figure 1. Decoration material grade
Note: E0 is the highest health standard in the world. E1 environmental protection standard is a national health standard and a compulsory safety standard line.

From the data analysis in Figure 1, it can be seen that when the decoration materials are used, there are still big problems. Only a few citizens use the decoration materials, all of them are E0. And most of them are using E0 and E1 mixed decoration, only the number of who is more who is less. There is also a part of all E1 decoration materials, although it is up to the national mandatory safety standard line, but with a long time may also have an impact on people's health. It can be seen from the data of environmental protection decoration that citizens need to use more energy-saving technology to improve their living environment.

![Figure 1.](image)

**Figure 2.** Is the living experience satisfied after decoration

From the data analysis in Figure 2, we can see that there are still some problems in the living experience after decoration. These problems affect the living experience of the citizens, and let them have more opinions on the application of environmental protection and energy saving technology in building decoration. Therefore, in order to better let the citizens have a better experience, we need to increase the innovation efforts to bring the citizens a better living experience, so as to make the citizens live and learn better, improve their abilities, and make the city develop better.

### Table 1. Priority of environmental protection decoration materials

| Material | Science Degree | Floor | Wall | Glass | Furniture |
|----------|----------------|-------|------|-------|-----------|
| First    |                | 72    | 53   | 28    | 47        |

According to the data from the questionnaire survey in Table 1, in terms of the priority of environmentally friendly decoration materials, most people focus on floors, walls and furniture. From this it seems that people still have a little understanding of decoration, but they are not comprehensive. Which is also an important factor we have learned based on the results of this survey. Therefore, efforts should be made to promote the use of environmental protection and energy-saving technology in building decoration projects so that people have a better understanding, and efforts should be made in the application of environmental protection and energy-saving technology in building decoration projects, which will also make this place better development of.

### 5. Conclusion
In summary, with the increasing economic level of people, building an environmentally friendly society requires the joint efforts of all sectors of society. In the construction industry, decoration and decoration engineering resource materials consume a lot, and also have higher environmental

protection requirements. The use of modern environmental protection technology and energy-saving building technology can improve energy efficiency. Reducing energy consumption and pollution is also a necessary condition for sustainable social development. The requirements for the environment are getting higher and higher: Pollution and climate change are the main problems that seriously affect the quality of human life. Therefore, the use of environmentally friendly materials in the decoration and decoration projects, as well as the strict operation of green construction technology and principles, can better control the decoration and decoration process, thereby improving its quality. On the basis of ensuring the complete and beautiful structure, the concept of low carbon is becoming more and more. Popularity has become the basic principle that a modern city planning and design must follow. In the actual decoration construction process, if it does not meet the requirements of energy saving and environmental protection, this will not only cause a huge waste of resources, but also cause serious environmental pollution, and ultimately endanger the lives and health of residents. Therefore, the establishment of a low-carbon environment, and the corresponding building complex to maximize the use of energy-saving and environmentally friendly materials, and strengthen the scientific nature of environmentally sound design. It plays an important role in the development of cities in the new era.

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