Research on innovative application of energy-saving and environmental protection technology in building construction under the background of low carbon

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Abstract: In recent years, with the rapid development of China's economy, the construction industry has been rising. However, while the construction industry has achieved economic benefits, it has also caused a series of environmental problems, such as resource waste and environmental pollution. These problems lead to poor sustainability of economic development. Building green construction should be based on the innovative perspective, combined with the actual situation of the project, and on the basis of advocating the concept of green construction, improve people's awareness of environmental protection and energy protect. The application of green construction technology and energy-saving and environmental protection methods has saved the construction cost and created higher economic benefits for construction units. How to reduce pollution as much as possible has become the focus of attention from all walks of life. At present, low-carbon living is advocated, and building construction also needs low-carbon construction. This paper explains the green building construction technologies under the low-carbon background, analyzes the current green construction technologies, and gives some constructive suggestions. With the development of social and economic construction and the advancement of urbanization, the scale of urban construction has gradually expanded, but a large amount of construction waste has also appeared. In response to the call of building a resource-saving city, energy-saving and environmental protection technologies have been applied to construction projects. Through technical management and practice reform, energy saving and environmental protection can be achieved.

1. Introduction

At present, China's construction industry is developing rapidly, and the country is vigorously promoting green construction technology. At the same time, it protects the environment around the construction project and reduces the environmental pollution caused by construction sewage and garbage [1]. However, the rough construction and development mode of one-sided pursuit of economic benefits has also brought many problems to China's natural environment, such as excessive energy consumption, destruction of the natural environment, and difficulties in the consumption and treatment of construction waste. Green building construction technology has been gradually improved and optimized, but there are still some shortcomings. If it can be further optimized and improved, the construction industry will easily waste resources and energy in the actual construction process, and at the same time, it will also cause serious pollution to the environment. Therefore, enough attention must be paid to this problem, especially in today's energy scarcity, and the use of natural energy, such as solar energy and wind energy, should be strengthened, which is of great significance to the sustainable development of China's social economy. Applying energy-saving and environmental protection technology to civil engineering construction can not only effectively control environmental pollution, but also ensure the quality of civil engineering construction by using environmental protection materials and technologies to make civil engineering construction develop towards ecological and green direction. By strengthening the green construction consciousness of construction technicians, energy consumption

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and material waste can be reduced. Therefore, corresponding energy-saving and environmental protection measures must be taken to ensure the quality, safety and stability of engineering construction to the maximum extent [3].

2. The essence and development direction of energy protect and environmental protection in building construction under the background of low carbon

2.1. The essence of energy protect and environmental protection in building construction under the background of low carbon

In the process of closed dewatering of foundation pit in construction engineering, the construction technology of foundation pit bottom sealing+foundation pit side wall curtain or foundation pit side wall curtain+foundation pit bottom sealing is usually adopted to cut off water [4]. Solar and wind power generation technology. Using solar energy and wind energy to generate electricity is a new green construction technology in building engineering. In order to further promote the construction and development of low-carbon and energy-saving buildings, in recent years, the concept of green construction has been put forward and implemented in the construction process. In the process of construction, it is necessary to protect the land on the construction site, and it cannot be greatly damaged; As far as construction projects are concerned, the application of energy-saving and environmental protection technology is to ensure the quality and comfort of buildings, adopt efficient and advanced construction methods, and make full use of land resources and materials, so as to achieve the ultimate goal of energy-saving and environmental protection [5]. While promoting the further development of construction enterprises, we also pay special attention to the protection of people's living environment, especially the application of energy-saving and environmental protection technologies, which can play a dual role in improving the construction quality of civil engineering and environmental protection. Improve the environmental pollution problem. With the rapid development of economy and the centralized construction of cities, the implementation of a large number of civil engineering projects can provide a lot of convenience for people's study and life. In the construction, the field production wastewater technology, rainwater recovery technology and foundation pit construction precipitation recovery technology are generally used for the utilization and recovery of water resources. In summer, the sun shading technology reduces the sun's exposure to buildings, the indoor temperature is less affected, and the electricity consumption is reduced. Its purpose is to reduce energy consumption and waste through the application of green construction, and finally promote the rational use of social resources and natural resources. The incremental cost of a certain green Samsung operating logo project is shown in Table 1.

Table 1 Proportion of incremental cost of a green Samsung operation logo project

Technical measures	Increment cost/ten thousand yuan	Incremental cost/%
Energy-using water metering	36	7.36
Indoor environment detection	41	11.59
Roof greening	11	4.59
Permeable pavement > 40%	32	12.48
Adopt adjustable external sunshade	52	13.48
Rainwater accumulation and utilization	57	22.45
Solid waste recovery	28	24.48
Set water meter for connection purpose	11	4.57
Environmental noise detection	6	2.59
Renewable energy utilization system	55	14.87

2.2. Necessity of adopting green construction technology in building industry

In recent years, the speed of urbanization in China has been increasing and the scale has been expanding, but in sharp contrast with its development speed, most of the completed buildings

belong to the category of high energy consumption. Focus on solving water pollution problems, such as concrete mixing and other construction, and try not to discharge water containing a large number of hazardous elements into residential drinking water areas [6]. Energy-saving and environmental protection technology can control the construction cost. With this technology, we can combine the actual situation of existing energy and resources to develop new green environmental protection materials. In the process of applying energy-saving and environmental protection technologies, we pay more attention to the strict control of building materials, and a large number of environmental protection materials are used, which greatly reduces the energy consumption and promotes the improvement of people's life quality. In order to effectively improve the environmental pollution and damage caused by civil engineering construction, we need to reasonably apply energy-saving and environmental protection technologies to civil engineering, and at the same time emphasize the scientific distribution of natural resources to reduce the waste of energy. When ready-mixing mortar on the construction site, wet mixing and dry mixing are mainly used for green construction [7]. Closed foundation pit dewatering technology. Engineering construction, especially deep foundation pit construction, will involve foundation pit dewatering. In the actual development process, this form of high energy consumption building runs counter to the concept of sustainable development and energy intensive development in China. Reduce noise pollution. Although noise pollution is invisible, it does great harm. If the construction technology is not advanced, it will cause great trouble to people's daily life. It not only ensures the cost control of each link of the construction project, but also accelerates the construction progress on the basis of ensuring the interests of both contractors and builders. The system framework of "four sections and one environmental protection" of the project is shown in Figure 1.

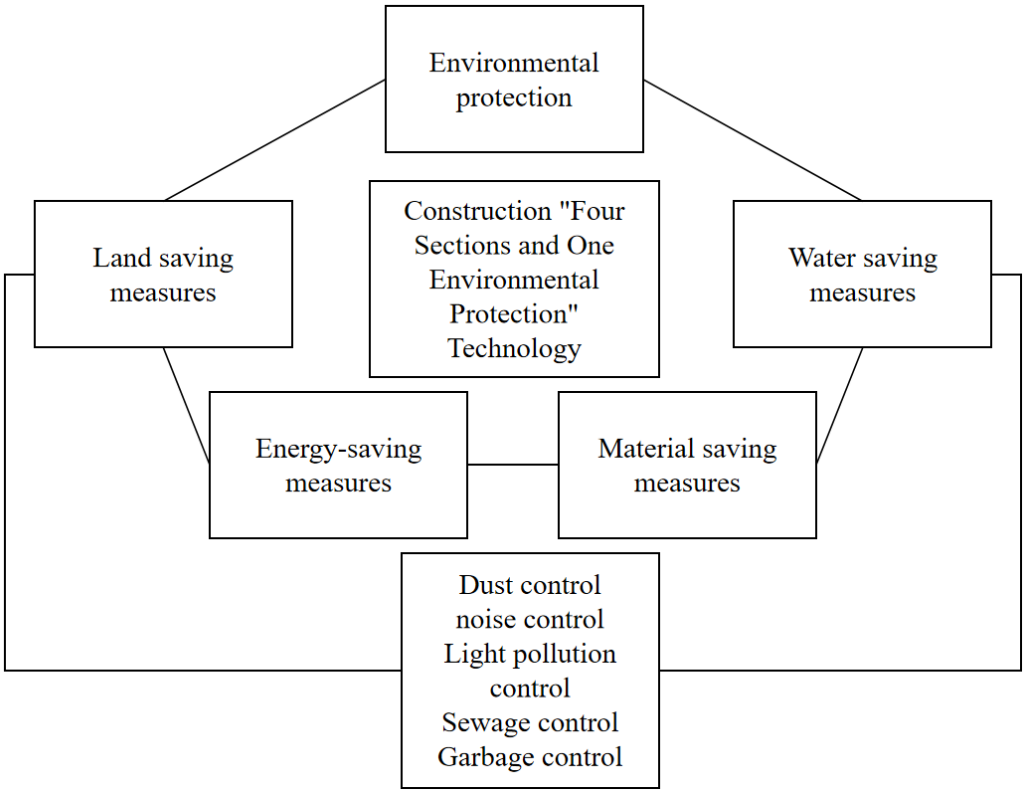

Figure 1 Architecture of "Four Sections and One Environmental Protection" System in Construction Engineering

3. Application and development of energy-saving and environmental protection technology in building engineering construction

3.1. Strengthen the awareness of energy protect and environmental protection

If we want to promote the wide application of energy-saving and environmental protection

technology in civil engineering construction, we need to promote all construction enterprises to fully realize the important advantages of energy-saving and environmental protection technology and the significance of its application in civil engineering construction, and strengthen their awareness of energy-saving and environmental protection. At present, the application prospect of energy-saving and environmental protection technologies is very good, but due to the large number of traditional civil engineering enterprises in China and the incomplete understanding of energy-saving and environmental protection technologies, it is difficult to change roles at the moment [8]. As a kind of renewable energy, solar energy can be connected to the grid to generate electricity by integrating it with building entities and photovoltaic modules. For construction units that lack technical personnel for energy protect and environmental protection, it is necessary to recruit experienced technical personnel for energy protect and environmental protection. Selecting non-toxic and green building materials can greatly reduce the construction waste, and because of the environmental protection of the materials, the environmental pollution in the construction process is reduced. When the building construction reaches a certain stage, the dust pollution can be reduced by planting green plants. Plants are still very effective in dust control. The use of solar energy will increase the cost of the construction unit, and there are big differences in solar energy among different regions. To make use of solar energy, it is necessary for the relevant R&D personnel engaged in energy protect and environmental protection in the country to continuously optimize and upgrade and innovate in technology. We should also publicize energy protect and environmental protection to the public, strengthen their awareness of energy protect and environmental protection, and make them fully understand the important role of energy protect and environmental protection materials in environmental protection, so as to further promote the popularization of energy protect and environmental protection technologies [9]. Therefore, when selecting construction materials, some polymer composite environmental prot

3.2. Effective strategy of energy-saving and environmental protection technology in civil engineering construction

In order to speed up the universal application of energy-saving and environmental protection technology in civil engineering construction, it is necessary for the construction unit to have a more comprehensive understanding of the great influence of the application of energy-saving and environmental protection technology in civil engineering construction, and to improve the energy-saving and environmental protection awareness of all relevant personnel. In addition, construction enterprises should also pay attention to strengthening the implementation and supervision of energy protect and environmental protection management mechanism, so as to avoid the problems of energy waste and environmental damage to the maximum extent [10]. Solar energy is the richest resource on earth, which is characterized by recycling and pollution-free. In the actual building construction process, it can provide enough heat and light for the building construction. For the problem of waste pollution in the construction site, special personnel can be arranged to sort out and recycle the waste. To achieve this goal, on the one hand, it is necessary to stop using toxic building materials; on the other hand, it is necessary to strengthen the application of low-carbon technologies. The energy protect and environmental protection supervision and management department must formulate a sound energy protect and environmental protection management system and legal system, and strengthen the supervision and management of energy protect and environmental protection of construction units. When controlling the light pollution, the outdoor lighting equipment should be covered with lampshades; Light should be concentrated on the construction area at night, and shielding measures should be taken to prevent light pollution for technologies such as electric welding and cutting. Rotary running can only be carried out by means of cementing tools. In the construction preparation stage, it is known by prediction that the torque of the tail pipe is relatively large, so API casing is needed to meet the construction requirements. During construction, the unit must strictly follow the management system of energy protect and environmental protection, save resources and materials, and ensure that the environment is not polluted. In the construction of temporary facilities, materials with high efficiency, heat insulation,

detachable and recycling, and product certification should be selected to build temporary facilities. Do a good job in receiving and handling wastes during disassembly and dismantling.

4. Conclusions

With the continuous development of the times, the call of the society for low-carbon construction is rising. This paper discusses the non-low carbon problems existing in China's construction projects at present, and puts forward the solutions according to the existing problems. Large-scale construction projects bring great convenience to people's daily life and work, and promote the sustainable development of the national economy. However, some energy and resources will inevitably be wasted in the concrete construction process, which not only helps to improve the environment, but also helps to improve people's quality of life, and is also an important technical means in civil engineering construction. However, in reality, there will still be some influencing factors more or less. Therefore, we need to adopt corresponding effective measures according to different situations to speed up the popularization of energy-saving and environmental protection technologies in civil engineering construction, so that civil engineering will gradually become environmentally friendly and modernized. Because green construction technology is not only reflected in materials, sites and energy, but also in construction parameters and construction quality. Government departments, especially construction enterprises, attach great importance to green construction technology and energy-saving and environmental protection methods in construction, which not only reduce the construction cost, but also improve the level of environmental protection.

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