Technical application of green construction and energy saving and emission reduction in building engineering

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Abstract: With the accelerating process of urbanization in China, the application of green construction technology and energy-saving emission reduction technology in the overall level of building engineering has gradually become a common concern. Based on the current status of technology implementation, the paper first analyzes the definition and value of green construction for construction engineering, and then discusses the main content of green construction techniques for building engineering, and puts forward corresponding application planning strategies on the basis of technical advantages so as to effectively promote the application of green construction technology for construction engineering and create conditions for the stable development of China's construction engineering industry.

1.Introduction

With the rapid development of the construction industry, the current energy consumption problems in building engineering have gradually become the main environmental and resource problems in China. According to relevant statistical results, more than 50% of China's energy consumption is used in construction and related fields, so optimizing building energy consumption plays a vital role in improving China's energy efficiency. In order to further analyze the optimization strategy of green construction of building engineering and improve the comprehensive application level of energy, the definition and connotation of green construction technology of construction engineering are as follows.

2.Overview of green construction, energy saving and emission reduction in building engineering

2.1Basic definition

The green construction technology applied in the implementation process of construction engineering can be divided into two levels according to the technical definition. One level is the greening of the energy structure, which means reducing energy consumption and improving the energy adaptability of buildings, thus achieving good sustainable development. The other level is the adaptation of the environment to be green, that is, in the process of construction project and construction execution, the impact and damage to the environment should be reduced as much as possible, thereby enhancing the integration of the building and the surrounding environment, and forming a more stable ecology cycle. In order to achieve the above objectives, first of all, it is necessary to arrange construction process control and link optimization. Through the technical upgrading of each link, the effect of increasing income and reducing expenditure can be achieved, including optimizing the allocation of talents,

property and other aspects to ensure the smooth development of the project. Secondly, project needs to be improved on existing basis. Through comprehensive optimization of construction technology and management experience, we can ensure that the process in the construction can be improved, avoid cumbersome operation process and reduce the utilization of materials, and improve the comprehensive utilization of resources. Finally, energy consumption and technological innovation must be promoted simultaneously. Short-boards cannot be produced. It is necessary to ensure that construction technology plays its basic functions and uses, which is also an important requirement for green construction in building engineering.

2.2 The importance of green construction in building engineering

Green construction in building engineering is the high standard requirement for construction engineering industry in our country at present, which is of great significance to promote the reform of China's construction industry and ensure the advancement of the industry, mainly reflected in the following aspects:

2.2.1 Harmonious coexistence between human and nature

We transform the environment through improving productivity to make it more suitable for human development and living. However, in this process, human beings still need to rely on the ecological environment. Therefore, only by dealing with the relationship between human and nature can we ensure the stable and sustainable development of the construction industry. In recent years, in order to improve the level of economy, there have been many problems that have damaged the environment. At the same time, it has also brought about various pollution and environmental changes, which has hindered the further development of the economy and society. The proposal of green construction technology in building engineering requires us to protect the ecological environment, reduce the maintenance and restoration cost of the ecological environment and ensure the overall level of environmental protection while doing a good job in economic construction. The application and promotion of green construction technology in building engineering will play a crucial role.

2.2.2 Balancing the relationship between economic and social benefits

With the continuous improvement of the level of socialist modernization, people are now aware of the issue of the balance of economic and social benefits. With the progress of society and the change of construction responsibilities, we also recognize that the development of the country and even the nation cannot be separated from the adaptation of the ecological environment and the development of the overall benefits of society. Therefore, the construction industry should not be able to limited to the short term interests, but should focus on the future and enhance social and sustainable benefits, which requires implementing green construction in building engineering, improving the efficiency of resources and reducing energy consumption. This is also the fundamental requirement for China to achieve sustainable development.

2.2.3 Institutionalized guarantee of social fair competition

China pursues socialist market economic system with unique market economy characteristics and development content. In this process, people can effectively stimulate their work enthusiasm, but at the same time, there will inevitably be management defects in competition, including fair competition. In order to avoid negative competition and market destruction, it is necessary to unify construction technology standards and construction requirements, enhance the restraint and deterrence of the industry. At this time, it is also necessary to unify and standardize green construction technology in building engineering, so as to eliminate backward technology and enterprises, promote the development scale and adaptability of advanced productivity, and build a better country.

3.The main contents of green construction technology, energy saving and emission reduction in building engineering

The application and development of green construction technology in building engineering are not limited to the construction technology itself, besides, it includes multiple levels, such as building technology management elements and decision-making ideas, which are mainly reflected as follows:

3.1Management system

With the application and development of green construction technology in building engineering, appropriate management system has gradually become a necessary condition for improving the application level of green construction technology in building engineering. By establishing a sound management system and improving the standardization management, the implementation effect of green construction in building engineering can be effectively improved. On the one hand, it can effectively improve the smooth implementation of the rules, avoid some people make profits in troubled situation in the aspect of technical standardization, on the other hand, it can effectively maintain the application level of green construction technology and the economic and social benefits of enterprises, reduce the decline of social competitiveness caused by the increased cost of green construction and protect the enthusiasm of technological innovation, which are also necessary conditions to ensure the stable and rapid development of the industry.

3.2Environmental protection strategy

Reasonable and scientific environmental protection strategy is also the necessary way to construct the standardization of green construction technology of building engineering. In the process of implementing the green construction in building engineering, enterprises need to have the sense of innovation and innovative organization. At the same time, government needs to undertake the corresponding job functions. They can implement the corresponding environmental protection strategies and technical implementation goals, achieve mutual restraint and management. The adaptability of technology also stimulates people's awareness of environmental protection and enhances the recognition of green construction in building engineering. For example, at present, people generally understand the way of regularly spraying water and spraying dust, and it is helpful to solve the working environment and eliminate the surrounding effect.

3.3Saving the land

In the project planning of construction, the green construction technology not only requires reducing pollution and waste of resources, but also needs to solve the problem of excessive land occupation in building engineering. In line with the basic principles of land conservation, it is also necessary to reduce the amount of construction, reduce the temporary construction, ensure the comprehensive utilization of resources, and at the same time, we should try to protect the cultivated land and avoid the problem of occupying cultivated land.

4.Application strategy of green construction, energy saving and emission reduction in building engineering

4.1 Providing comprehensive utilization of water resources in construction

China is a country with a shortage of water resources per capita, and the amount of water resources per capita is less than 25% of the world level. Therefore, water-saving and water resource utilization are eternal themes in the green construction in building engineering. In view of the current utilization of water resources for building construction in China, there are many parts that need to be technically optimized, but the most common method is to regenerate water by recycling, so that comprehensive utilization of water can be improved. Efficiency can also avoid wasted due to insufficient use of water resources. The specific way is to establish a dedicated panning water system, collect it with washing water, car wash water, etc., then store it in a reservoir or water tank, and put it into the toilet, vehicle

and other cleaning fields in terms of domestic water. The comprehensive water saving efficiency is over 30%, and the circulating water system is as shown in Figure 1 below:

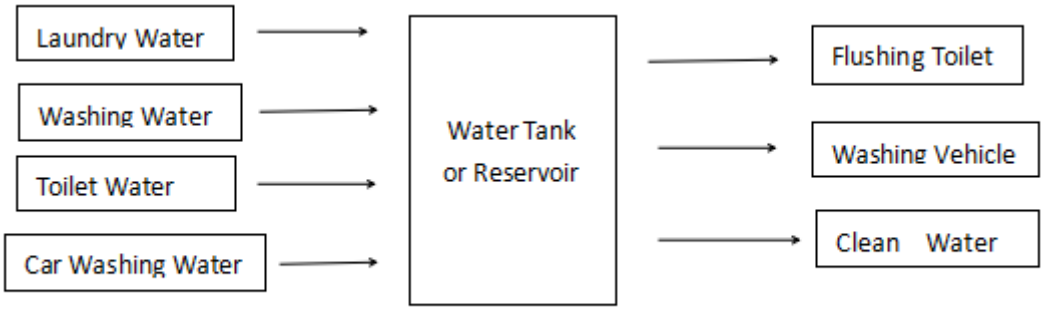

Figure 1 Circulating water system

In this process, we should pay attention to the selection of hydraulic pipe fittings with strong stability, so as to avoid problems such as running out,dripping and so on, and effectively improve the efficiency of waste water and better complete the use of water resources.

4.2Optimizing the green and energy-saving design of houses

The proportion of green energy saving technology in the green construction technology of building engineering is relatively high. Through scientific technology optimization and preparation, the utilization rate of resources and energy can be reduced under the premise of meeting the basic functions. The green energy saving technology of housing is mainly reflected in the following aspects:

First, external wall base management

The treatment of external walls is an important part of the green construction technology of building engineering. This is because this part requires a large amount of materials and also involves the insulation of external walls, which has a certain impact on energy consumption. By improving the application level of green construction technology in building engineering and adjusting the stability of materials, materials with reasonable cost and excellent quality and strong reliability can be selected, and the selection and cooperation of material technology can be carried out by combining scientific calculation and working condition requirements, so as to ultimately improve the overall effect of management.

Second, skirting board and wall design

Although the design of the skirting board and the wall is not high, there is often a problem of material waste. Under the premise of unified planning, it is also necessary to consider that the above materials are themselves consumables, so it is necessary to integrate economics and adaptability in the procurement process, and also to ensure that the materials are environmentally friendly and non-polluting..

Third, resource and inventory management during construction

Construction process control is also critical to improving economy and adaptability. Material inventory management involves material prevention and deterioration of overall process control, minimizing inventory time, improving turnover utilization, and even achieving zero inventory is the basic goal of improving management efficiency.

4.3Establishing and improving the supervision mechanism for project promotion

The green construction technical supervision mechanism of construction projects shall be led by the manager, and green construction supervisors shall be appointed to carry out on-site supervision. The specific organization chart is shown in figure 2 below:

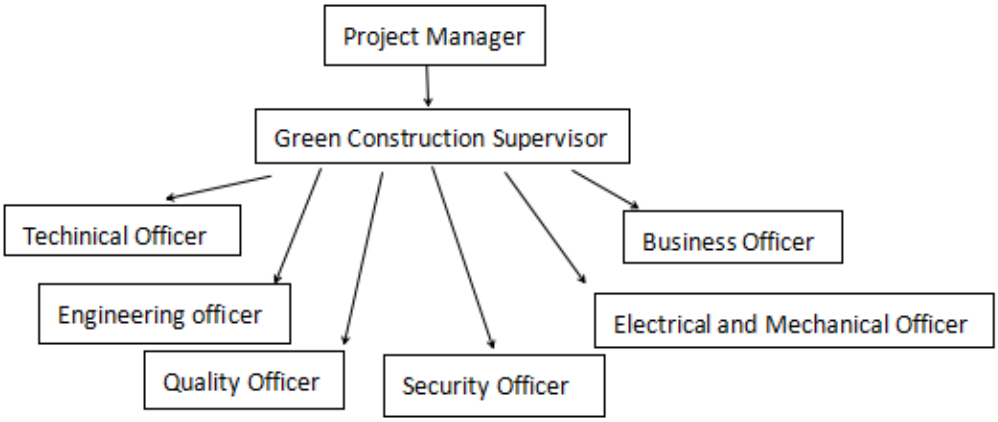

Figure 2 Organization chart

Perfect project supervision mechanism is of great significance for improving the application effect of green construction technology in building engineering. In combination with the actual application requirements of the technology, it is necessary to first clarify the duties of the post, and evaluate the technical elements in stages according to different steps such as project, foundation, decoration, and mechanical and electrical installation. Secondly, it is necessary to establish a sound construction plan preparation system while clarifying the job responsibilities. To improve management level through the implementation of green construction management. We need to highlight the technical requirements of green construction, and find new technologies, new materials and equipment in green construction technology in building engineering when setting goals, so as to better accomplish the technical implementation task by improving the practicality of planning. Finally, according to the technical requirements of green construction, the overall construction objectives will be implemented, and a sound project supervision mechanism will be established to supervise the whole process. After the construction of the construction target system is completed, it is necessary to carry out on-site green construction technical supervision and guidance work, coordinate with related departments and make technical disclosure to ensure that the technology can be effectively implemented.

5. Conclusion:

In summary, the application and development of green engineering construction technology has a certain promotion effect on accelerating the construction technology level of China's construction industry and ensuring the rational use and stability of resources. In combination with the current application status of construction technology in the construction industry, it is also necessary to strengthen the team building of project management personnel, improve the team construction level, and further improve the project supervision mechanism to ensure supervision effect, except continuing to do green energy-saving design of houses and comprehensive utilization of water resources. This will lay a good foundation for the efficient application of green construction technology in building engineering, and provide ideas and references for the realization of socialist modernization and the improvement of China's overall urban construction planning level.

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