Journal of Sustainable Development and Green Buildings (2023)
Clausius Scientific Press, Canada
DOI: 10.23977/jsdgb.2023.010102
ISSN 2616-2857 Vol. 1 Num. 1

Research on Green Construction Management Strategy for Low Carbon and Energy Conservation Building Engineering Projects

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Keywords: Low carbon and energy saving, Construction projects, Green construction, Management policy

Abstract: In the current global context of energy constraints, innovation has been made in building construction management, introducing green construction management into building construction management. It advocates water and electricity conservation, civilized construction on the construction site, and reduces the harm caused by construction to the environment through standardized on-site management. Many construction enterprises still use traditional construction management methods. During the construction process, construction enterprises continue to pursue the maximization of benefits without promoting the concept of green construction management. Many construction personnel do not understand green construction management enough. During the construction process, the waste of materials and energy sources is still relatively serious. In order to solve this problem, we need to use more green and energy-saving construction technologies in the construction process. This article attempts to study the green construction management of construction projects through low-carbon energy conservation. By using some low-carbon and energy-saving buildings, the ultimate goal of green energy conservation will be achieved, which is also to lay a solid foundation for the sustainable development of our construction industry.

1. Introduction

Nowadays, with the in-depth development of the construction industry, the scale of construction projects is constantly expanding, and the consumption of energy is also increasing. In order to comply with the sustainable development strategy put forward by the state, we must attach importance to the development and introduction of green construction technology in engineering construction, so as to minimize energy consumption and realize the green and sustainable development of the construction industry. Green construction technology has gradually spread in the field of architecture and developed into an advanced trend of the times. In the process of building construction, scientific management plays a very important role in improving building quality and reducing building cost. Under the background of global energy shortage, the construction management is innovated, and green construction management is introduced into the construction management, which advocates water and electricity conservation and civilized

construction on the construction site, and reduces the harm to the environment caused by construction through standardized on-site management [1]. Therefore, green construction management came into being. The development time of green construction management is not too long, and its application in China's construction projects is not mature. So what problems exist in green construction management at this stage and what strategies should be used to solve these problems [2].

In order to solve this problem, we need to use more green and energy-saving construction technologies in the process of building construction. In fact, as early as 1970s, many people put forward the concept of low-carbon energy saving, but it was not until 1990s that people paid more and more attention to it. In the process of building construction, there are many variables in the construction environment, so the construction unit must pay close attention to the changes in the living environment near the construction site, pay attention to environmental protection, and fully implement the green construction concept of “four festivals and one environmental protection” [3]. If we can make full use of some low-carbon and energy-saving buildings during construction, we will eventually achieve the goal of green energy saving, which is also to lay a solid foundation for our construction industry to achieve sustainable development [4].

2. Development Issues of Green Construction Technology in Building Engineering

The so-called green construction refers to a construction concept constructed by controlling the application of materials and related technical measures during the construction process to reduce energy consumption and alleviate environmental pollution. The concept of green application has rich connotations, and specifically requires the application unit to pay attention to water conservation, electricity conservation, energy conservation, material conservation, and control environmental pollution [5]. From Figure 1, it can be seen that the development issues of green construction technology in construction engineering are mainly divided into three aspects.

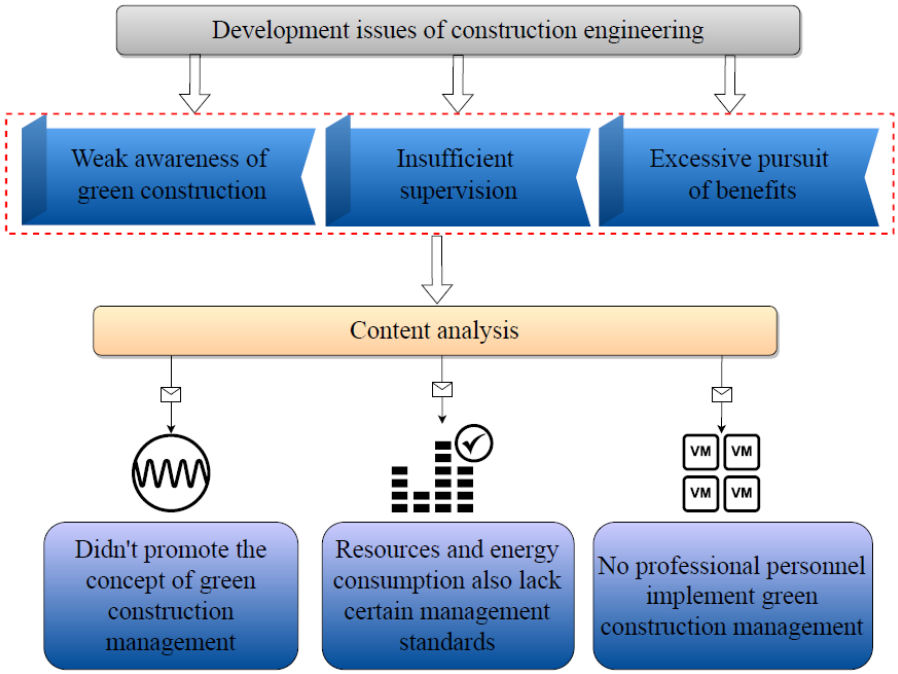

Fig.1: Development Issues of Green Construction Technology in Construction Engineering

Building engineering construction is deeply rooted, making it difficult for construction companies to make changes. Even though they know the benefits of green buildings, they still do

not receive sufficient attention. This chapter will provide a detailed description of the problems existing in green construction technology for construction projects.

2.1 Weak Awareness of Green Construction

Currently, due to the lack of publicity for green construction, many green construction management personnel only know the "term" green construction, or have a certain impression on it, but they have no specific concept of what scope it covers and what responsibilities relevant personnel should perform [6]. Green construction management has become an isolated and formalized work. The entire work was not supported as it should be. The transformation of concepts has become an urgent issue, which has seriously affected the further development of green construction work.

Different fields have different definitions of green construction, but they share common points and purposes. However, green construction in the construction industry refers to the following: under the premise of ensuring basic requirements such as project quality and safety, through scientific management and technological progress, minimize the use of resources and damage to the ecological environment, and strive to achieve energy conservation, water conservation, material conservation, land conservation, and environmental protection. Many construction enterprises still use traditional construction management methods, unable to implement green construction management during the construction process, wasting building materials, and increasing cost investment [7-8]. During the construction process, construction enterprises continue to pursue the maximization of benefits without promoting the concept of green construction management. Many construction personnel do not understand green construction management enough. During the construction process, the waste of materials and energy is still relatively serious.

2.2 Inadequate Supervision

The government has not formed certain standard requirements for green construction, which leads to the failure to establish perfect legal norms for green construction. Even if the owners require the use of green construction technology, the relevant regulatory units cannot supervise the construction process according to effective basis [9]. China lacks laws and regulations on green construction management, and there are no scientific and perfect technical standards for green construction, such as the lack of resource and energy consumption and waste discharge quota in the construction process. Relevant government departments pay more attention to civilized construction and construction safety in construction site management.

The implementation of green construction management is more difficult, lacking certain orderliness, the work behavior is not standardized enough, and the work functions of each part are not clear. The overall work efficiency is greatly reduced. At the same time, there is also a lack of certain management standards for waste discharge and resource energy consumption in the process of engineering construction, which leads to the low overall effectiveness of green construction and the inability of relevant regulatory authorities to effectively manage it.

2.3 Excessive Pursuit of Interests

Construction projects are mainly aimed at making profits, and joining the green construction management work will have a certain impact on the interests. In the actual construction process, many construction units and enterprises have not arranged professional personnel to implement green construction management in order to reduce construction costs. There are also significant problems with cost resources. Each cost of a construction project has a certain estimate, and the

investment in green construction is not sufficient, making it impossible to achieve all aspects of work.

In enterprise management, there are problems such as unscientific, non-standard, and arbitrary management, as well as a lack of systematic and comprehensive research on sustainable development of enterprise management, enterprise systems, green construction, and other issues, which makes it difficult for green construction management to reach a new level [10]. For some enterprises with supreme interests, green construction management has become a stumbling block to their profits. Therefore, at this stage, many enterprises are very repelled by green construction management. Although enterprises understand the significance of green construction management, due to the complexity of green construction management, they still need to introduce advanced green construction technology and equipment, and in addition, they also need to continuously introduce high energy saving construction materials with environmental protection effects.

3. Construction Strategy of Low-Carbon and Energy-Saving Buildings

3.1 Using Low-Carbon Energy-Saving Concept to Ensure Income Balance

It is self-evident that people attach importance to environmental protection in modern society, so we can seize this business opportunity as the focus of publicity. Because the construction of low-carbon and energy-saving buildings has little pollution to the ecological environment, it can be ignored, which can not only improve people's living satisfaction, but also truly achieve the purpose of saving energy. Construction enterprises need to set up professional green construction management institutions, implement the green construction management system according to management regulations and certification requirements, and carry out overall and dynamic supervision over the whole construction process to ensure that the green construction management mechanism can be carried out efficiently. In the whole process, we need to make full use of natural resources, so as to reduce unnecessary consumption and minimize the damage to the environment. To become a low-carbon and energy-saving green building, a building must meet the following three conditions, as shown in Figure 2.

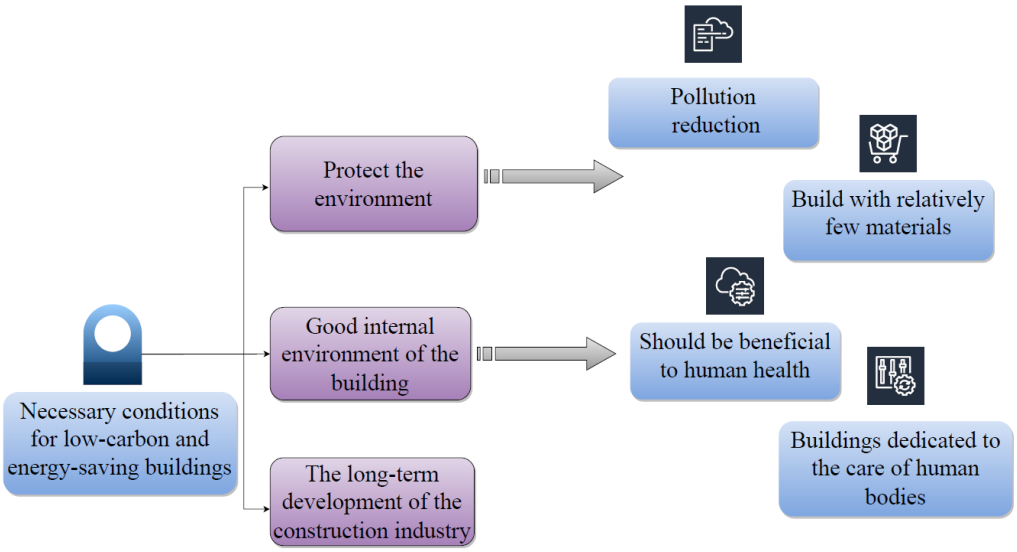

Fig.2: Necessary Conditions for Low-Carbon and Energy-Saving Buildings

Highlighting the theme of environmental protection in the publicity of construction projects, and marketing green construction management in the process of sales are a means to arouse public interest. So as to achieve the purpose of increasing income. In order to ensure the better

construction of low-carbon and energy-saving buildings, the construction personnel in the project should constantly improve and perfect the original construction scheme according to the structural characteristics of the building project and the actual living needs of people, so as to continuously reduce the ecological environment pollution.

3.2 Deeply Strengthen Staff's Awareness of Low Carbon and Energy Conservation

Everyone is familiar with the concept of low carbon and energy conservation, but the specific implementation situation is not ideal. To achieve breakthrough progress in the work, it is necessary to deeply implement the awareness of environmental protection into the minds of employees. In the construction process of low-carbon energy-saving buildings, the entire life cycle is mainly divided into four stages, namely, the construction preparation stage, the construction stage, the completion stage, and the use stage. In order to extend the service life of low-carbon energy-saving building projects, construction personnel should carefully follow the construction plan in combination with relevant construction requirements. The construction unit needs to first improve its own green construction management concept, should have a professional construction management team, and regularly organize green construction management education, so that the management personnel can be aware of the importance of green construction, thereby ensuring the overall team's green environmental protection concept, and can achieve strict construction during construction.

When building low-carbon and energy-saving buildings, we are particularly not able to cause damage to the surrounding environment. Build buildings with the fewest possible building materials while reducing pollution. In fact, protecting the environment is the most fundamental goal of developing low-carbon and energy-saving buildings. Conduct relevant training for employees to enable them to understand the importance, professionalism, and necessity of green construction. Involve employees in every aspect of the overall work and use practice to provide employees with a profound environmental lesson.

3.3 Innovative Organizational Management Forms

Firstly, in project management, relevant regulatory departments should conduct unified planning and management for all personnel involved in construction, and establish an effective management model based on the project construction unit, and use this as a gathering point for cross management. Civilized construction is a basic requirement of green construction. For civilized construction, the first requirement is to keep the site clean and tidy. Special personnel should be assigned to clean the site regularly and at fixed points to avoid dust and debris accumulation polluting the environment. Before foundation excavation, the organic soil on the surface of the ground is temporarily stockpiled on the site for greening after the completion of the building, which can not only reduce construction costs, but also reduce environmental pollution such as noise and dust generated during earthwork transportation.

Combining the topographic and geomorphic conditions of the area, comprehensively considering the issues of land conservation and construction land protection, and combining the installation of various temporary facilities on the construction site, the original construction plan is continuously improved to further enhance the safety of the construction site. Firstly, it is necessary to clarify the respective responsibilities of the regulatory department, the project construction unit, the construction unit, and the design unit, and reasonably divide the responsibility distribution. To greatly improve the professional abilities of employees, it is necessary to conduct periodic work assessment and urge employees to make continuous progress. There is also a need to introduce some specialized talents, allowing fresh blood to promote the flow of talents, thereby providing more talent reserves for the promotion of green construction management.

4. Conclusions

To sum up, under the current background of advocating low-carbon energy saving and environmental protection, construction enterprises need to pay attention to the development and application of green construction technology to further optimize the construction environment. Green building is the future development trend of the construction industry, and it is also the hope of the construction industry. It better meets the requirements of China's social and economic sustainable development, and its environmental and social benefits are unquestionable. By adopting green construction materials and technologies, we will strengthen the rational development of natural clean energy and the application of energy-saving and environmental protection construction technologies, realize the effective establishment of the “four festivals and one environmental protection” building construction system, and comprehensively improve the construction quality and overall benefits. Fully combine the architectural differences between the north and south of China and residents' living preferences to build low-carbon and energy-saving green buildings. Before that, we can fully conduct market research and then decide on the specific construction scheme of low-carbon and energy-saving buildings. Improve the quality of ecological environment around the building. In the actual construction process, construction personnel should combine the use of various construction materials, use advanced construction technology, and carry out construction according to various technological processes to further improve the utilization rate of various construction materials. Make full use of the advantages of the Internet to promote low-carbon and energy-saving construction technology, so that more people can realize the benefits of this construction technology.

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