



Research Paper

Problems and solutions in China's green building industry from the perspective of sustainable development

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ABSTRACT

There is a steady growth in China's economy in recent years, and rapid urbanization has made the construction industry a pillar of the economy. As we all know, the construction industry has high energy consumption and high pollution problems. At the same time, in order to respond to the construction of ecological civilization and sustainable development of society, China has started to implement green buildings. This article briefly introduces the concept and characteristics of green buildings, points out the problems in the development of the industry and puts forward suggestions, hoping to provide some help for its future development.

Duwei Zhang, Wanjing Wu and Ping Fang*

College of Environmental Science and Engineering, Tongji University, Shanghai, 200092, P. R. China.

*Corresponding author. E-mail: fangping2000@tongji.edu.cn.

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INTRODUCTION

With the improvement of living standards, people's demands for ecological environment are becoming more and more obvious. With the deepening of the concept of sustainable development, green buildings have gradually emerged as a new type of building. Its low-carbon energy-saving functions are more in line with the needs of the country than traditional buildings, which is an inevitable trend in the development of the construction industry. At present, green buildings and sustainable development have become hot topics.

GREEN BUILDING

Green building concept

Green buildings do not only provide people with a healthy and comfortable living environment during the building life cycle, but also maximize the use of natural resources, reduce waste and reduce environmental pollution, and achieve the harmonious coexistence between man and nature with the purpose of energy saving and material saving (Wang, 2019; Yao, 2018; Gao, 2019). The essence of green building is ecology. On the basis of artificial

transformation, the green building makes the relationship between man and nature in a dynamic balance (Sun, 2019).

Green building features

1). Low energy consumption: The energy consumption and pollution of traditional buildings are serious. Exhaust waste residue pollution, sound pollution, light pollution, toxic and hazardous substance pollution, high energy consumption, etc. Compared with traditional model buildings, the superiority of green buildings is reflected. The green building is integrated with the natural environment. The impact of the building on the surrounding environment is minimized as much as possible, and new process technologies are used to improve the utilization of energy. While achieving environmental protection, it also guarantees economic benefits.

2). Pollution is small: Green buildings save resources (energy-saving, material-saving, water-saving, and land-saving). From design to use, building materials and process technology have been scientifically planned to reduce secondary damage to the ecology (Wang and Cao, 2018).

3). Humanity: Green buildings can take into account regional and climatic differences, fully consider the physical and spiritual needs of people, and use existing green building materials to deal with indoor and outdoor environments such as lighting, natural ventilation, sound and noise reduction, air cleanliness, heat insulation, etc. It can provide a pleasant living environment for a long time (Wang, 2018).

THE MAIN PROBLEMS IN THE DEVELOPMENT OF GREEN BUILDINGS

Incentives

Policy support is an important foundation for the development of green buildings. Due to the lack of incentive policies, the construction unit's implementation of green buildings is in a negative state. This has also delayed the promotion and development of green buildings. Especially in the new countryside, to build green buildings cannot lack government incentives. The reasons are simple: first, the cost of green building materials is higher than ordinary; second, rural areas do not have a solid economic foundation. Moreover, China's green building started late, and the lack of supporting policies and measures hindered the popularization of green building concepts (Zhao, 2019; Qian and Zhao, 2019).

Publicity and popularization

The current construction industry does not form a correct understanding of the concept of green buildings, and this concept does not penetrate well in people's production and life. In addition, the people's awareness of environmental protection in our country is not strong, which limits the development of green buildings to a certain extent.

Management system

Architecture is a systematic project, and it should follow the system management standards from planning and design to completion acceptance. The current low management level of the enterprise leads to the phenomenon that the long-term construction cannot achieve the expected effect. The lagging management of the green building industry and even the lack of awareness of management concepts make the industrialization of green buildings difficult.

Green building materials and construction supervision

Ordinary buildings have a lot of consumables during the construction process, and may cause certain pollution, such

as the "three wastes", sound and light pollution emitted during the construction process. Especially in the case of imperfect garbage disposal mechanism in China, the waste building materials after completion can easily cause bad effects on the environment (Ma et al., 2019; Feng, 2019). The complexity of green building construction is higher than that of traditional buildings. For example, all aspects of green buildings need to meet green norms and standards, which will make coordination between enterprise departments more difficult. Improper supervision may result in wasted materials or even unacceptable acceptance and forced rework (Cheng, 2018).

Green building market

The development of green buildings has not kept pace with urbanization, and a green market based on consumer demand has not yet been established. Some developers or staff members only care about the immediate benefits. They invest too much in green buildings but ignore economic development (Wang and Yan, 2019).

Funding and technology

Lack of funds and lack of expertise are also key issues for the development of green buildings. There are a large number of traditional buildings. To meet the requirements of sustainable development, converting traditional buildings to green buildings requires large-scale renovation of funds. Due to the short development time and small scale, and the lack of professional and technical personnel, the level of green construction technology is low. Moreover, traditional construction technology can no longer meet the requirements of sustainable development strategies and need to shift to green technology development. This has hindered the development of green building work.

Green building industry chain

Due to the short development time of green buildings, the green building design planning, production evaluation, construction and other links have not formed a complete industrial chain, and even some elements are still in the exploration stage, hindering the development of green buildings.

Green building area coverage

In China's urban and rural construction, green buildings account for a relatively low proportion. In addition, restricted by regional economic development, the distribution of green buildings in the east and west is

uneven. The number of green buildings in the eastern coastal developed regions is significantly more than in the central and western regions. The quality of green buildings in developing backward areas is relatively poor, and enterprises cannot unite their own interests with the society, making it difficult to promote green buildings in the central and western regions.

Local specialties

Architecture is a local symbol. Designers should consider local characteristics and human environment when designing. The buildings in the city are basically the same and cannot show the local customs and characteristics. There are also some designers who are determined to go their own way. The design not only lacks a characteristic culture but also lacks practicality. All these will lead to the lack of connotation of green buildings (Zhang, 2019).

SUGGESTIONS FOR GREEN BUILDING DEVELOPMENT

Increase the intensity of incentive policies

Developed countries strongly support the development of green buildings, such as: introducing related policies to reduce taxes and awarding incentives to the industry, attracting more construction units to the development of green buildings, thereby expanding the green building development team; promulgating preferential policies for purchases to stimulate citizens' consumption of green buildings.

Strengthen publicity and raise awareness

Government departments vigorously advocate low-carbon economy and life through television, internet, publicity, etc., and publicize the characteristics and benefits of green buildings, so that people face green buildings more, increase their awareness of environmental protection, and better understand the relationship between green building and economy to provide the most basic social support for the development of green buildings. At the same time, government departments should take a long-term view of the benefits brought by green buildings (Han, 2019).

Improve management system

Construction enterprises themselves must change their minds and grasp the substantial differences between green buildings and traditional buildings. Before construction, scientific planning can improve work efficiency and construction quality, which is conducive to improving the

management system of the enterprise, sustainable development of the building and transformation of the building model. Learn from foreign experience, improve relevant laws and regulations, make the concept of green building economy run through the entire development, and provide a basis for the promotion of green buildings (Li, 2019).

Promote the use of green building materials and strengthen supervision

Compared with traditional building materials, green building materials have higher quality and meet green environmental protection standards. For example, the main energy consumption in rural areas is heat transfer. We can use light aggregate hollow bricks with a small heat transfer coefficient instead of clay hollow bricks with poor thermal insulation performance to strengthen the thermal insulation effect of the external wall and reduce the energy consumption (Yi, 2019).

Green building materials should be supervised in the application process, so that the project can be completed with quality and quantity, and the materials can achieve the expected performance effects according to the design (Chen, 2019).

Open green market

The government makes good use of its functions to make a long-term plan for the construction industry's trend; introduces people-friendly policies for the sale of green buildings; gives priority to green building companies; fully understands the actual needs of the market and carefully plans the development direction of green buildings. The government also should be bold in disclosing the results of green building assessments in the market, while giving some financial support to developers so that they can open up the green building market.

Increase funding and technology investment

The completion of green buildings requires not only advanced equipment, technical talents, but also careful planning schemes, all of which require a lot of financial support. After having the funds, focus on innovation in traditional technology and put it into practice, strengthen technical cooperation with other countries, and coordinate traditional building technology with green technology, so as to accelerate the accumulation of China's practical operation experience in green construction. Scholars learn from foreign experience, coupled with independent research and development, make green technology continue to be strong, laying a solid technical foundation for

construction (Yong and Zhu, 2019).

Gradually forming a green economy industrial chain

The design of green buildings should comply with the principles of environmental protection, low carbon, and take full account of local conditions; use green building materials during implementation; provide operational services after completion; and supervise the entire process. Only by forming an industrial chain can construction units have the incentive to promote green buildings and scale up green buildings (Yan, 2018).

Coordinated development of green building areas

The government will coordinate the development of green building areas. Relevant people in charge need to formulate a green building development strategy suitable for the region according to the region's resource conditions, economic level and actual needs. For example, the successful construction of the Nansha Pearl Bay Green Ecological City has provided a good solution for the development of green buildings in other regions (Zhang et al., 2019).

Protecting local characteristics

Designers need to combine local characteristics with the surrounding natural conditions and use advanced design techniques to optimize planning. This can not only improve the indoor environment of the building, but also make the building team's environment more adaptable. The construction units should strengthen the development of local green buildings, and at the same time provide experience for future construction work under the same conditions.

SUMMARY

Environmental issues are deeply rooted in the hearts of the people, and green environmental protection has become the mainstream. Promoting green buildings is an important means to promote the coordination of urban development and the construction of urban ecological civilization. Although China's green building has begun, it is in its

infancy. The government has introduced stronger incentive policies, provided certain funds, vigorously cultivated relevant technical talents, and improved green building industry regulations. Construction companies improve the management system, do a good job of supervision, pay special attention to the problems exposed during the development of the industry, and consistently implement the green design and construction concept, paving the way for the smooth development of green buildings and providing a force for sustainable development.

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