

Research on Application of Green Building Materials in Civil Engineering Construction

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ABSTRACT. *Green buildings have become a new trend in the development of the construction industry today. Especially with the continuous development of society and economy, the use of green building materials in civil engineering has become a major driving force for the development of the civil engineering industry. Green building materials have multiple advantages such as comfort, beauty, health, and environmental protection. Nowadays, they have gradually been used in high-end design, internal construction and external construction. Therefore, in order to further promote the application of green building materials in civil engineering, measures such as secondary use of waste, development of new green building materials, and formulation of relevant industry standards are needed to promote the development of the construction industry.*

KEYWORDS: *Civil engineering; Green building materials; Sustainable development*

1. Introduction

Although the price of traditional building materials is relatively low, they are deficient in quality and environmental protection. Many low-cost building materials will release toxic and harmful substances, which will not only damage the environment, but also affect people's health. But after the emergence of green building materials, its environmental protection and health characteristics have won the favor of many consumers. Nowadays, the application of green building materials has become more and more extensive, and its competitiveness in building materials industry is also growing.

2. The Necessity of Using Green Building Materials in Civil Engineering

2.1 Changes in Consumer Demand for Building Materials

With the continuous improvement of China's economic strength, people have the higher and higher requirements for the quality of life, especially the living environment that has been with people for a long time, which has gradually attracted people's attention. For a long time, due to the influence of low-cost and low-quality building materials, people's living environment has been greatly polluted, and people's health is also threatened. Therefore, people's demand for green building materials is getting higher and higher. In addition, the country's advocacy of green environmental protection makes people realize the importance of environmental protection once again, and the green building materials gradually become the preferred materials in civil engineering construction.[1]

2.2 Material Requirements for Sustainable Development of Buildings

With the continuous rise of science and technology and economic strength, sustainable development has gradually become the main direction of China's social development. In the context of sustainable development, sustainable building development is also an inevitable trend. In order to achieve sustainable development of the building, green building materials must be used in the construction of civil engineering, so as to achieve resource conservation and protect the environment, thereby promoting the healthy and sustainable development of the building, and the society will gradually realize sustainable development.

2.3 The Actual Needs to Promote the Country's Economic Transformation

Nowadays, the traditional economic model has been unable to promote China's economic development

quickly and effectively, so achieving economic transformation has become an inevitable requirement. In the process of economic transformation, the development model of environmentally friendly society has received widespread attention, and the development model of environmentally friendly society has gradually become the main trend of China's transformation with its characteristics. Green building materials are the product of the development of environmentally friendly society. The application of green building materials to civil engineering is consistent with the characteristics of China's economic transformation. It can not only promote the development of the construction industry, but also promote the transformation and development of our economy.[2]

3. Directions for Using Green Building Materials in Civil Engineering

3.1 The Green Building Materials Can Be Used for High-End Design

Compared with traditional building materials, green building materials have advantages such as lightness, waterproofness, greenness and environmental protection, so they are very suitable for high-end designs. Today, many high-end designers have begun to use green buildings as a basic design material when designing buildings. In this way, the designer is required to have a clear understanding of the building materials when designing, and at the same time to clarify various data indicators of the building materials, such as the specific thermal insulation performance and thermal insulation performance of a certain building material in a specific environment. Only a thorough understanding of these building materials can ensure the effective application of building materials in high-end design.

3.2 Green Building Materials Can Be Used for External Engineering

In the external construction of civil engineering, the construction team should pay attention to the construction of heat preservation and insulation of the building to ensure the internal environment is warm in winter and cool in summer. Therefore, in the process of external engineering, if the building materials have better thermal insulation performance and insulation, a lot of building materials can be saved. As the most popular building materials, green building materials have great advantages in heat preservation and insulation. When green materials are used in exterior engineering, the thermal insulation performance and insulation performance of the building will be greatly improved. In addition, green building materials also have a very high anti Strike ability, which also has a very good protective effect on buildings.[3]

3.3 Green Building Materials Can Be Used for Internal Engineering

The internal engineering construction has high requirements for the volume of building materials, because the traditional building materials are too bulky and it is very inconvenient to move back and forth. Green building materials are generally lighter in weight, and the problem of inconvenience in handling has been eased. In addition, green building materials also have many advantages such as green environmental protection, good sound insulation, and safety, forming a strong contrast with traditional building materials. Therefore, green building materials can also be used in the internal engineering of buildings, which can not only improve the living environment of people, but also improve the quality of life of consumers.

4. Application Strategies of Green Building Materials in Civil Engineering

4.1 To Pay Attention to the Secondary Utilization of Waste

Under the demand of promoting the economic construction of our country, mineral enterprises will produce a large number of ores every year. After processing, they will produce a large number of coal gangue, fly ash, metal slag and other wastes. If these wastes can not be properly treated and applied, they will not only occupy a lot of land resources, but also cause serious pollution to the environment, groundwater and so on. However, coal gangue, fly ash and other slag can be used to make green building materials. Therefore, civil engineering enterprises can purchase these waste slag for secondary utilization as raw materials for green building materials production. In this way, not only the pollution of waste to the environment is avoided, but also a purchase fund of building materials is saved for the civil factory enterprises.[4]

4.2 To Enhance the Level of Building Materials Production and Develop Green Building Materials

In order to promote the application of green building materials in the civil engineering industry, China should continue to learn from the advanced western technology, learn from the experience of western production of green building materials, improve the production capacity of green building materials in China, and vigorously develop green building materials. In particular, it is necessary to cooperate with mineral enterprises to form industrial chain, make secondary use of wastes produced by metal industry and mineral industry, continuously improve the ability of industrial waste utilization, reduce the consumption of natural resources, and develop green building materials on the basis of environmental protection and resource protection.

4.3 To Formulate Industry Legal Standards to Guide and Supervise the Use of Green Building Materials

In order to promote the rational and standardized application of green building materials in the civil engineering industry, the government and legal departments must also formulate relevant legal systems and supervise the use of green building materials by using compulsory means such as law. In particular, it is necessary to implement the system in all aspects of green building materials from research and development to application, thereby ensuring the standard application and scientific competition of civil engineering enterprises. In the competition between green building materials and traditional building materials, the government must also adopt certain policies and systems to help green materials occupy market share. However, in order to ensure market stability, the government must not interfere excessively.[5]

5. Conclusion

In summary, it has gradually been applied in the high-end design of civil engineering, internal engineering and external engineering, due to the many advantages of green building materials. However, the green building materials are high-tech, so they have not been widely used. Therefore, in order to meet the needs of more consumers, it is necessary to combine the multiple uses of green building materials producers for secondary use of waste, improve the production capacity of green building materials, and strengthen the guidance of laws and regulations by government departments, thereby promoting green buildings in civil engineering Application.

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