

Application Analysis of Green Building Materials in Civil Engineering Construction

Xiang-Yu Xu*, Xue Li

Wuchang Shouyi University, Wuchang, Hubei, China.

Correspondence to: Xiang-Yu Xu, Wuchang Shouyi University, Wuchang, Hubei, China. E-mail: 786583@qq.com

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Abstract

The concept of green construction has been widely applied in current development progress of construction industry. The key application points of this concept is to pay attention to the protection of surrounding environment, to take measures of saving energy and reducing emissions and reduce the consumption rate of energy and to prompt the sustainable development of economy when conducting engineering constructions. Currently, when constructing civil engineering, green building materials is continuously expanding its application area. The emergence of some new materials provides effective support for green construction of civil engineering. Construction enterprises, when applying these materials, must strictly follow the principle of green construction, select right construction raw materials to conduct the engineering so as to improve the total quality of construction. The paper analyzes and discusses the application of green building materials in civil engineering construction.

Keywords

Green building materials; civil engineering construction; application; analysis and discussion

1. INTRODUCTION

When conducting the traditional civil engineering construction, enterprises mainly select the traditional kind of construction raw materials. In current situation, it is necessary to use more green and environmental protection construction raw materials to improve the application quality of civil engineering. Comparing with traditional materials, new materials are more safe and environmental and they do not cause pollution problems, nor contain metals or carcinogens. When using these materials, improving the application rate of materials can not only ensure the physical and mental health of residents, but also reduce the construction cost. This kind of material will not cause environmental pollution in the process of application and can promote the construction of an environment-friendly society in China. Therefore, construction enterprises must realize the importance of this kind of material application^[1].



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Figure 1. Application of green building materials in civil engineering construction.

2. APPLICATION PROBLEMS OF GREEN BUILDING MATERIALS IN CIVIL ENGINEERING CONSTRUCTION

1.1 Materials Selection

In the process of the continuous development of the times, there are more problems in the application of traditional building materials. It spends more cost in the application of these traditional materials, and the building function is not perfect, there are more problems in the application. As shown in Figure 1, the application of green building materials for civil engineering construction not only conforms to the concept of green construction, but also has more types and more perfect functions. Therefore, before the construction of civil engineering, the construction enterprise must select the right green materials according to characteristics of the project. For example, when selecting materials in the early stage of project construction, if some traditional materials are selected, there will be a lot of dust and pollutants on the site during construction. Whether it is the construction indoors or outdoors, it will have some negative effects, and even harm the physical and mental health of residents^[2].

If purchasers choose the green environmental protection materials when they carry out the material selection work, they can effectively solve the dust and pollution problems on the site, which has a favorable impact on the air environment protection and the physical and mental health of the residents. However, in the selection of materials for bamboo structure, although the application of these materials is more safe and environmentally friendly, there will be no pollutants, but a lot of human and material resources are needed to obtain these materials. Of course, the appearance of some new green environmental protection materials has effectively solved these problems, and these materials are more safe, healthy and environmental protection in the process of application. But in fact, there are some limitations in the application of these materials. Therefore, construction enterprises must do a good job in the selection of materials when carrying out engineering construction. It is necessary to select correct raw materials according to the construction situation of the project, and ensure that the materials are more scientific and reasonable in application^[3].

2.2 Construction and Quality Acceptance

In the construction of civil engineering, in order to give full play to the application effect of green building materials, we should not only promote the orderly development of material selection, but also do a good job in the management and quality acceptance of the construction stage. Only by doing a good job in the construction

site management, can we ensure that green building materials can play a better role in the application. When carrying out acceptance work, we should give full play to the value of materials. Therefore, in the process of engineering construction, the enterprise should consider the application of materials comprehensively in combination with all factors on the site, and strictly follow the concept of green environmental protection. It is necessary to make a comprehensive budget for the construction cost and recycling effect of materials, so that green building materials can be perfectly integrated into all aspects of construction. In the process of engineering construction, if the construction enterprises want to seek more benefits, the construction personnel will use inferior materials and turn out substandard goods. It will not only reduce the application value of materials, but also reduce the construction quality of the project from the root^[4].

3. APPLICATION OF GREEN BUILDING MATERIALS IN CIVIL ENGINEERING CONSTRUCTION

3.1 Selecting Materials with Heat Insulation Performance

In the construction of concrete structure of traditional buildings, the application of hollow block and reinforced concrete wall material has thermal insulation function. But because the traditional materials have the characteristics of singleness in application, it is difficult to meet the construction effect of heat insulation. Therefore, construction enterprises need to develop and utilize green energy-saving and environmental protection materials in an all-round way in order to make up for some shortcomings in the application of traditional materials. At present, in the process of wall construction, some thermal insulation materials can be set outside to reduce the heat insulation coefficient and heat loss of the wall, so as to avoid the waste of resources and other problems. When dealing with the exterior wall, we should do a good job in the coating and pasting of thermal insulation materials, we must improve the quality of the work, in order to give full play to the application effect of materials. When the interior wall is treated, some healthy green environmental protection materials can be sprayed so as to ensure that these materials are cleaner in the application process, reduce the pollution of indoor environment, and provide better environment for residents^[5].

3.2 Selecting Energy-saving and Environmental Friendly Glass Materials

In civil engineering construction, the application of glass materials is relatively common. This kind of material has better light transmission effect, more varieties and types in the market, and the use function is quite different. In the selection of this material, the construction enterprise should select the right type of glass in strict accordance with the construction function of civil engineering, and also ensure that the function of this material in the application meets the construction requirements. We should not choose some unqualified glass materials to reduce the construction cost, nor choose some super-high-grade glass materials to pursue the luxurious construction effect too much. We should strictly follow the construction principle of green environmental protection to select the right glass materials, improve the green environmental protection effect of the application of glass materials, and ensure that the materials have better heat insulation performance. It is also possible to choose some vacuum glass materials with better sound insulation effect, or relatively new materials with low density, and foam glass materials with low corrosion resistance and low radiation glass materials^[6].

These materials can meet the requirements of lighting effect and environmental protection construction in the process of application. In the application of photochemical glass, it is a new material produced by recycling and utilizing some waste glass materials, melting and foaming these materials. This is the recycling of waste materials, so this material can reduce the construction cost in the process of application. In the application of low radiation glass material, because the shading coefficient of this material is relatively low, the transmittance of visible light can meet the use requirements of residents. In the process of using this kind of material, it has stronger shielding, can avoid the adverse effect of strong light on the residents, can also reduce the radiation, and enhance the comfort of the residents. Making full use of this new energy-saving and environmental protection material in civil engineering construction can create a more comfortable living environment and provide all-round services for residents^[7].

3.3 Application of Environmental Protection Materials in Wall Construction

In the construction of traditional concrete structure, after the pouring operation is completed, the sintered brick is used for filling. However, because the construction cost of this operation form is relatively high, there

is serious harm to the environment. Therefore, in the process of later construction, some cement materials and sandstone materials are gradually used to construct the concrete structure hollow brick, which gradually replaces the sintering brick. When making hollow brick materials, the filling operation can be carried out according to the construction requirements of the building, and the specifications of the operation can be changed. In recent years, a new type of wall material has emerged in the process of construction. This material is membrane net concrete material, which is constructed by materials such as snakeskin net and folding hook tie bar. This kind of material is widely used in stairs and other areas of civil buildings. The new type of aerated concrete brick is made of coal ash, cement and other materials according to the experimental proportion. These new materials have better heat and sound insulation performance in the application process, and have more application advantages than the traditional concrete structure. They can be processed by using some wastes generated in the construction process, and the new materials can be produced by recycling the wastes. Therefore, the plasticity of these materials is relatively strong. In the process of application, it can not only reduce the overall construction cost, but also reduce the amount of construction waste^[8].

4. APPLICATION PROSPECT OF GREEN BUILDING MATERIALS IN CIVIL ENGINEERING CONSTRUCTION

In the application of environmental protection construction materials, it can not only reduce the energy consumption rate of the whole industry, but also reduce the pollution of the surrounding environment in the construction process, and build a real green building. With the wide application of the concept of sustainable development, the application of environmental protection building materials has become the development trend of the whole industry when the construction enterprises are carrying out the civil engineering construction, the research and development of materials will continue to increase, and they will have more advantages when using these new materials. According to the development needs of the construction industry, the research and development of green building materials will be in the direction of resource saving. At present, the output of industrial waste and domestic waste is very high in China. If we can develop some green building materials with high utilization rate, we can reduce the consumption rate of resources, improve the product yield, and realize the construction requirements of resource saving. We can also develop some energy-saving materials. These materials are to make full use of renewable energy, achieve the construction effect of energy conservation, and make full use of solar energy. In the research and development of space green energy-saving materials, it is mainly to reduce the emissions of harmful gases. For environment-friendly materials, this kind of materials can minimize the environmental pollution in the process of use. During the construction, it can create a more superior construction environment for the project construction and reduce the adverse impact on the construction personnel^[9].

5. CONCLUSION

To sum up, the concept of green in the recent stage has attracted extensive attention from all walks of life, and residents have put forward higher requirements for green household goods. In the construction of civil engineering, the application of green environmental protection construction raw materials has a necessary impact on the physical and mental health of residents and environmental protection. When using these new materials, the construction personnel must select the right materials according to the construction requirements of the project, and use them scientifically in strict accordance with the operation procedures. Through the quality acceptance of various procedures, the application value of this green environmental protection material can be continuously improved, and promote the sustainable development of civil engineering.

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