

Discussion on Green Building Design

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1. Requirements on the green building design

1.1 The criteria for material selection

According to the design principles of green building, which is environmental significance, the industry will carry out the entire design process with the concept of environment protection, thus improve the quality and level of green building. First of all, from the perspective of building materials, taking into consideration of the green related issues, so the selection of building materials must be in green color, in order to in line with national standards of green building materials, such as concrete, tiles and paint and other building materials must select based on national science standards.

And put resources to rational use or unleash the recycling function, to economize the materials costs of building, also as an important part of green building. For example, blast furnace cement, which has a very high recovery ingredient, can be recycled again. With the design principles of "people-oriented", in deciding of decorative materials, suggest to choose as much as possible the renewable materials to ensure harmless to the human body, or the materials which will not produce harmful gases after contact with the air, absolutely prohibit the purchase is not Meet the standard decorative wood. While the cement, glass and other decorating materials are as much as possible to choose the local building materials, mainly to consider its safety. It is absolutely prohibit to purchase decorative

wood that does not meet the standards. And for the cement, glass and other decorating materials are suggest to use the local building materials, mainly to consider its safety.

1.2 Requirements on water application efficiency

From the perspective of advocate environmental protection, improvement of water efficiency requirements for green building is inevitable, green building very focused in the nature coordination with the surrounding environment, for example, the green belt in the plot of plants in the district, planting perennial native plants, which helps reduced the water needs, and reduced of water for afforestation; secondly, the interior decoration such as bathroom, to consciously to select or buy a water-conservation products with the certified logo, in order to reduce the daily use of water, and also reduce the financial burden of the family; finally, the use of modern technology, the installation of rainwater harvesting system, collection of water from surfaces on which rain falls, and can use for irrigation or public toilets, substantial savings the public water and can storing the rainwater for later use as a reserve water to prepare for the needs.

1.3 Requirements on water application efficiency

Green building can reflect environmental protection, energy saving is also a major feature in the green building design process, in order to

Abstract: In order to continually meet the growing material and cultural needs of the people, leads to increasing scale in construction, to a certain extent, has accelerated the pace of urban construction in China, but also exposed many shortcomings. For example, the energy consumption of the construction industry is too large, it is pernicious to the sustainable development of modern society in China, and the substance of green building is use of energy-saving harmless resources to build a comfortable and healthy living environment, to ensure the quality of living environment and reduce the threat to health of human. With the strength of economic benefits, energy conservation and other advantages, making a major contributions to the economic environment. Therefore, this research will study from the relevant requirements of green building design, in-depth discussion of green building design techniques as a reference for the industry practitioners.

Key Words: green building; design; energy saving design

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achieve energy-saving requirements, we must choose energy-saving insulation type of

material products. First of all, we may use nature, and actively use of solar energy, which can save a lot of electricity, and it is also both energy-saving and environmentally friendly, able to meet people's needs and facilitate people's life.

2 Green building design technical points

2.1 Green building design should start from the conservation of energy

resources and effective use

From the two aspects of design of energy-saving and the use of energy-saving, vigorously promote energy-saving, low-carbon, green green strategy, the first aspect is mainly in the architectural design stage that is fully implement energy conservation, low consumption, low emission ideas, energy-saving technologies and design tools, such as energy saving and environmental protection of new materials, low consumption of the new structure of the form of choice, conducive to creating a micro-climate of the overall layout of the building, insulation performance of the external maintenance structure and so on; the second aspect is the effective energy management in building operation of different stages, to promote green building towards intelligent and ecological. Renewable energy and natural energy and other new energy technologies. The use of natural energy and renewable energy such as water, wind, geothermal and solar energy is an important means of reducing energy consumption. At the same time, the use of these new energy sources can effectively reduce the pressure of traditional energy demand and improve the efficiency of energy use. From the project site selection, the full assessment of the feasibility of the project, the full analysis of the building on land and impact of environmental resources, in a reasonable location to protect the environment based and fully utilize the limited resources.

2.2 Considerations in structure of building and the impact in designing of green building

In the design of building structure, based on the green building energy-saving principle should be selected low-consumption lightweight structure system, the common light structure system are the lightweight span hyperboloid steel grid structure, shell structure, lightweight grid lattice plate building, also included the new lightweight construction such as tensile structure and pre-stressed ribbed dome. From the flexible and durable point of view, the internal structure of the building must have variability. According to Rogers, an easy to transform the building will have a longer service life and higher efficiency. The structure is variable and flexible, can meet the needs of different functions, transformation and reconstruction of the frequency greatly reduced, saving consumption of resources and investment costs. The structural variability of the building is to ensure the subsequent upgrading capacity, and such a structural system is sustainable. Based on the performance of materials and structural systems, any structural system has theoretically a critical point. When the structural scheme exceeds the critical point, the structural support system will fail, the material will be destroyed, structure will collapse. And when this critical point is not reached, it will lead to material performance of the waste system or components unable to perform its maximum functions and benefits. Therefore, to ensure the safety and to maximize the structural efficiency also need to seize this point in the green building. Industrialization and standardization of structural components.

2.3 Reduce the environmental burden in the green building, should minimize the environmental pollution to the lowest level

From the emissions issues in solid, gas and liquid, a standard discharge purposes and methods should establish. The needs of the

process in some emission of objects should be properly treated, then only allowed to go to the emissions, thus building minimized the produce of dirty water and various gases from building and this is the core goal of green building design. In the traditional architectural design, from the view of aesthetic and the safety of the building, the use of building materials are usually impacted and to pollute the environment, and thus causing irreparable damage to the environment. Hence, the birth of green building just to overcome the limitations of traditional building materials and backwardness.

2.4 The uses and selections of eco-friendly building material

In traditional construction projects, in the construction process often consume a lot of energy and resources, while causing serious pollution to the environment. The industry must possess the basic environmental awareness in the selection of building materials, possible to use the eco-friendly building material. Such as green concrete, ecological cement, high-performance building materials, which are healthy and comfortable material, to prevent produce construction waste.

3. Conclusion

In summary, green building can save resources by reducing the energy consumption during construction, improve the comfort level and reduce the environmental burden for improving the economic efficiency of the building and to ease the energy and resources crisis, to achieve a sustainable development with great significance. At the same time green building design also pull up higher requirements to the designers, different areas of green building design should be adapted to local conditions, combined with tradition and nature, technology and humanities, and truly make green buildings a livable and sustainable building.

Reference

- [1] Wang Wenai. Architectural Green Building Design Trends [J]. Residential and real estate, 2017,03: 60.
- [2] Wu Haizhen. Green Building Design Model [J]. Jiangxi Building Materials, 2017,02: 71 +74.
- [3] Lu Lina, Guo Zhenwei, Luo Fang. Green Building Design Consulting Business New Direction [J]. Construction Technology, 2017,02: 88-90.
- [4] Ai Lei. Green Building Design [J]. Jiangxi Building Materials, 2017,01: 27.