Research and Application of Complete Set Technology of Green and Energy Saving Assembly Building

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Abstract: According to the survey, environmental pollution is serious in China. Air pollution and water pollution are all serious. Therefore, the state pays more and more attention to green environmental protection. The building design is a creative activity in all kinds of energy decreasing, green energy-saving concept becomes an important content of architectural design engineering, green energy-saving design technology with architectural style is the inevitable trend of the development of our country, but also people focus on the problem. This paper analyzes the green energy-saving assembly building, studies the characteristics of the green energy-saving assembly building, and makes a systematic analysis of the green energy-saving assembly technology.

Keywords: Green energy saving; Architectural design; Technical research

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1. Introduction

With the rapid growth of China's social economy, the speed of our major cities' planning is also developing. Therefore, the development space of the construction industry has also been greatly improved. The past buildings are not integrated into the green energy saving consciousness, so the material in the building often has the characteristics of high pollution and high energy consumption. In recent years, the state has paid more and more attention to the environmental protection problem. Under the guidance of Scientific Outlook on Development, new type of environmental protection materials have been used in the building. Nowadays, scientific and rational construction management, building decoration, decoration and other aspects of energy saving and environmental protection design work have been carried out orderly. The environmental problems have been improved, but also promoted the development and progress of building environmental protection and energy saving design.

2. A Brief Introduction of Green and Energy-Saving Assembly Architecture

Since the twentieth Century, people began to study assembly structures until they were used in 1960s. The assembly architecture has the characteristics of fast construction and low production cost, so this kind of architectural design is quickly swept all over the world. The early assembly architecture was not very mature, so the shape of the building was monotonous and dull. With the development of economy, people have made in-depth research on the fabricated buildings, so the design has been improved, which makes the building more flexible and diverse. The improved assembly building can be built in batch and rich in style. There is a prefabricated building more advanced in the United States, in this building, every household is like a large car, need to use a large car to pull it to the venue, and then by crane to the floor pad and pre buried channel, power supply, telephone system is you can use.[1] Investigation and research shows that compared with traditional buildings, the green energy-saving assembly building is

greatly shortened, and the noise and other pollution has also been improved, which is conducive to the urban green planning.

3. Characteristics of Green and Energy-Saving Assembly Architecture

The assembly architecture is the representative of the green building. Most of the structure of the assembly building is completed in the production workshop, which is well assembled on the site after the prefabricated components. The assembly construction project has the characteristics of short cycle period, basically without environmental system, to a certain extent, it can save labor, strong flexibility, novel style and so on. The new green energy-saving assembly building mainly adopts various parts of the cold pressing light steel structure and all kinds of light-weight material combination houses, which has good insulation, sound insulation, fire protection, insect protection, energy saving and moisture-proof function.[2] There are five main types of building: block building, plate building, box building, skeleton plate building, lift board and floor building.[3] The traditional brick and concrete structure housing needs a lot of labor, at the same time the production efficiency is low, which leads to the slow construction speed, the material consumption and the environmental pollution. There are many problems in the design of the traditional residence, which can not meet the needs of the society for housing. Therefore, the green energy-saving assembly type building will adapt to the development of the times and comply with the call of the state, and will become the future development direction of the building.

4. Analysis of Complete Set Technology of Green and Energy Saving Assembly Building

1) Complete assembly technology of the main body of building.

The design of prefabricated building is mainly for the sake of environmental protection, the green building refers to the premise of ensuring the building has a comfortable and healthy indoor environment, through the use of reasonable and effective building energy saving and environmental protection technology, improve the efficiency of energy use, but also can effectively reduce the total energy consumption, so as to realize the ultimate goal of environmental protection and energy saving building[4]. Most of the assembly buildings are completed in the workshop, and the specifications of the buildings are specified by the customers, which are made by the workers in the workshop. The balcony windows, beams, etc. in the workshop according to different environmental protection materials for production, and then to the construction site of these parts to be assembled. Nowadays, there are many kinds of sample rooms in assembly buildings, and customers can choose according to their own needs. When the specifications of the rooms are determined, they can directly enter the production stage. The assembly architecture has many characteristics such as energy saving, short period of work, flexibility and so on. People can customize it according to its own preferences.

2) Complete set of technology for doors and windows.

The doors and windows open the door window frame is mainly traditional way of installation, installation of doors and windows so often there will be a gap, need to fill this gap, affecting the appearance and tightness. The assembly building has a model, which can be poured out of the suitable hole at one time so as to ensure the seamless connection between the hole and the window. In architecture, the design of windows is very final. Because the main function of windows is ventilation and lighting, so the room can take the principle of direct external doors and windows, so that indoor and outdoor air can circulate each other, so as to ensure the natural ventilation and in buildings.[5] There are many energy-saving designs in the assembly building, and the design of the size of the windows is one of them. For the window design, we must first go through the wind monitoring, wind field analysis and sum up the law outside the building, and then determine the magnitude and direction of a window, in order to increase the use of the area, we should use new energy-saving windows, this area at the same time in the window to increase, can realize the energy saving and environmental protection advocacy state.

3) The matching technology of the load-bearing wall and the non load-bearing wall.

In the traditional wall design, the load-bearing wall and the non load-bearing wall are constructed separately, and the connection between the bearing wall and the non load-bearing wall has the possibility of cracks. The load-bearing wall of the assembly building and the non load-bearing wall are constructed at the same time, which solves the crack problem well.[6] The energy saving and environmental protection of the assembly architecture mainly refers to the energy saving and environmental protection in the design of the building, the structure of the building and the material of the building. In the assembly process of architecture design, building materials should be selected in the green environmental protection materi-

al, try to use local materials, transportation cost control in a certain extent, so reduce the cost of transportation at the same time, but also greatly reduce the loss and exhaust of energy transport in the process of architectural design, we should try to make use of the thought of reuse of waste as far as possible, do all the planning well before the incident, and ensure the smooth and scientific construction process. Every link is perfectly matched. We should fully understand the functions of chemical materials, ensure safe construction, and avoid environmental pollution, and take green and environmental building materials as much as possible.[7]

4) Assembly design of building heating system.

In the environmental protection and energy saving design of fabricated buildings, the housing thermal performance is a very important design link, because most of the time, we mainly consider the warmth of exterior walls and windows, and the indoor heating system is also very important. There are three ways of indoor heating, which are central heating, low temperature hot water surface radiation heating system and electric heating film. Central heating can maximize the use of heat, while low temperature and hot water radiant floor heating system can control indoor temperature. When the indoor temperature reaches the prescribed temperature, it can reduce the indoor average temperature and to a certain extent, save energy. Third kinds of electric heating film belongs to intelligent heating, indoor temperature can be controlled at any time, when the room when no one can be directly closed, tenants can according to their own preferences on the indoor temperature setting, the indoor temperature is constant, the electrothermal film heating is environmental protection, no waste gas has no noise, in the assembly building, mostly using this heating method.

5) Complete set of technology for architectural decoration.

In the traditional architecture, often take the wall after the completion of construction on exterior wall decoration, this is often the construction of high-altitude operations, has a certain degree of risk, and assembling building wall and wall decoration can be poured together to save a part of high-altitude operations, reducing the risk of. And assembly building in energy conservation and environmental protection can also be good to meet the requirements of people. The assembly architecture can be produced in batch, and the decoration of the building is also decorated in one time. This kind of decoration is not only suitable for the assembly building, but also for the traditional high energy consumption building, it can also be used in this decoration method. This can improve the energy efficiency of the building by strengthening the energy saving function of the building, so as to improve the energy efficiency in the building, and then reduce the energy consumption.[8]

5. Conclusion

In conclusion, with the rapid development of economy, people's pursuit of green life is getting higher and higher. The green energy-saving assembly type building section is not only designed to meet the needs of the development of the current era, but also an inevitable trend of the development of the construction industry. The green and energy saving assembly architecture not only shows people's thinking about the value of the building, but also shows the harmonious relationship between man and nature. At the same time, the green energy-saving assembly building design can make full use of the existing resources, and effectively improve the living level of people through the development and utilization of renewable resources.

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