

Application of Energy-saving Construction Technology in Building and Civil Engineering

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1 Significance of Energy of Conservation Construction

First, to promote the sustainable development of the construction industry. At present, market competition in construction industry is increasingly fierce. In order to effectively promote the further development of this industry and win more market share in the increasingly incentive market competition, construction enterprises must conform to the direction of market development and apply various types of energy-saving building materials and equipment to promote sustainable development of construction enterprises. Secondly, to achieve the goal of social and economic healthy development to a large extent. The application of energy-saving technology can not only effectively increase energy use and reduce energy loss, but also alleviate the tension of social resources, which is the most important thing. At the same time, we can reduce damage to the surrounding ecological environment and advance the benign development of our country's economy. Third, to meet residents' pursuit of high-quality life. The relationship between construction industry and people is very close, and economic development will inspire people to pursue a high quality of life. So the key way to acquire a high quality of life is to improve the quality of the indoor environment of the construction civil engineering and to protect the ecological

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environment of the city building.

2 Application of Energy-saving Construction Technology in Building and Civil Engineering

2.1 Application of Energy-saving Construction Technology in Walling Work

In the process of energy-saving construction of building and civil engineering, exterior insulation technology is particularly critical. Wall insulation layer is usually installed in the both sides of the wall. There are mainly two ways to install insulation layer: We set insulation layer in the external. This method can effectively save usable area, but may lead to wall cracks, leaks and reduce wear resistance of the wall, and ultimately the cost will be greater. The other is that we set insulation layer inside the wall. It will be simpler in the concrete construction operation process, but the final effect is not better than the last method, because it can not fully play the insulation performance.

At present, in order to increase the efficient use of energy, our country has successively introduced some kind of reform measures on construction wall. What's more, many new building materials has appeared in market, including mixed wall materials, precast and cast-in-place concrete wall

Abstract: Under the background of society stepping into information age, machinery equipment manufacturing industry has undergone a dramatic change, traditional simple development model of mechanical structure has failed to adapted to the demands in the new age, old organism of organization and workflow has been short of market competitiveness, under the development with new technology and automation technology as represented, automation information technology comes to be popular in the mechanical design and manufacturing industry, meeting personalized, real-time, automatic and diverse market demands of mechanical design and manufacturing, thus better improving production efficiency of mechanical design and manufacturing, cutting mechanical design and manufacturing costs, comprehensively strengthening core competence of mechanical design and manufacturing products.

Key words: Building and civil engineering; Energy-saving construction technology; Application

materials, glass curtain wall, steel structure, building blocks, building plates and other major materials. The application of new type of wall material in the construction engineering can not only reduce construction cost, but also decrease its pollution to urban environment, as well as ensuring the optimization of the enterprise benefit. The new type of wall material is widely applied in construction because of its excellent thermal insulation performance. It can regulate the humidity and temperature of the indoor environment. In other words, the new kind of wall material can guarantee comfort inside a room, and has a very prominent social and economic benefits. It is worth noting that, in the process of concrete application, the design organization must strictly follow construction norms to implement new kind material.

2.2 Application of Energy-saving Construction Technology in Roof Engineering

Precast slab is the main material to effectively guarantee the quality and thickness of the roof insulation layer, and it can also reduce the wet trade of the construction site. We can use 1:8 or 1:10 of the cement vermiculite with 50cm*50cm*15cm plate. What's more, in the laying and handling process, adequate safeguards is demanded to protect the plate from being damaged , so people usually product precast slab in prefabricated site or specialized construction of prefabricated plants.

In fact, building construction roof insulation layer is a mixture of cement, vermiculite, perlite and cement, slag and lime, etc. The ramming and construction of roof insulation layer must be implemented in the construction site. We should keep in mind that temperature joint must be reserved for later deformation of the

concrete, and mark the joints' specific location one by one. We must ensure that construction organization can be strictly in accordance with the corresponding construction standards in the process of construction.

2.3 Application of Energy-saving Construction Technology in Doors and Windows Engineering

Aluminum alloys thermal-broken window mainly uses insulating glass and thermal-broken aluminum alloys. It has many notable advantages, such as beautiful appearance, waterproof, dustproof, noise-proofing and energy-saving features. Thermal-broken aluminum alloys obtain excellent isolating features by adding thermal break into aluminum profile, and then breaking the aluminum profile to form a broken bridge. It does well in reducing or even preventing heat conduction. Compared thermal insulation aluminum alloy profiles doors and windows with non-thermal insulation aluminum alloy profiles on the thermal conductivity, the former is 40%-70% lower than the later one.

Thermal conductivity K of this kind of doors and windows is below $3\text{w/m}^2\cdot\text{k}$. Compared with the effect of heat dissipation of the ordinary doors and windows, it has reduced by half. And the heating also reduced by about 30%. It can even insulate sound at 29 decibels and above. These data fully show that it has a excellent performance on air tightness and water tightness, which is basically in line with the National A1 Class standard. In addition, it has a comforting appearance. Hence, we can draw a conclusion that the large-scale application of aluminum alloy doors and windows of broken bridge can advance national construction and energy-saving business to a greater level.

2.4 The Application of Water Saving Technology

Today, water-saving technology in the construction of building and civil engineering mainly embodies in four aspects: First, the scientific and rational development and application of water resources; second, the use of effective management and technical to achieve the purpose of water conservation in construction; Furthermore, the application of waste water recycling technology; Finally, actively converting bad water into available water. According to related data, we know that our national civil engineering consumes water resources more than 400 million ton a year, which not only wastes resources, but also increase the costs of project. Hence, we should pay more attention to the application of water-saving technology to increase the utilization of water resources in the construction process.

3 Conclusion

In short, at present, as a major county with rich energy reserves, China is suffering energy shortage because its rapid economic development and large energy consumption. We must give priority to the issue of environmental protection. In the construction of building and civil engineering, the demand of energy is increasing, which will cause a lot of waste at the same time. So the research of this paper is very meaningful.

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