

Discussion on the application of the concept of environmental protection and energy saving in the design of building water supply and drainage

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Abstract: With the current, our country social economy rapid development, people's living standard and quality of life and therefore have got improved, at the same time, it is the concept of environmental protection and energy saving is also enhanced value, many fields in our country environmental protection and energy-saving concept can be seen in the application, especially the application in building water supply and drainage design more widely, to protect the environment, to maximize the use of limited resources, how to reasonable use of water resources in building water supply and drainage construction, above is current the paper mainly discusses the problems in the construction field, this paper based on environmental protection and energy-saving concept, discusses its application in the building water supply and drainage design, for your reference.

Keywords: Environmental protection and energy saving; Design concept; Building water supply and drainage; Used to investigate

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1 Introduction

In architectural design, water supply and drainage as a fundamental part of the design, for the whole building play its proper effect has a direct impact, as well as the construction area of the water resources utilization in also can produce a certain effect, according to the

latest research shows that the blend in environmental protection and energy-saving concept in the design of building water supply and drainage, on the one hand, to further optimize the whole building structure; On the other hand, it also plays a positive role in improving the utilization of building resources. Based on the above, an in-depth study on how to apply the concept of environmental protection and energy conservation to building water supply and drainage is of great significance for improving the utilization rate of water resources in China.

2 Overview of the concept of environmental protection and energy conservation

The concept of environmental protection and energy conservation can be analyzed from two perspectives: first, it can minimize the utilization rate of social resources in the process of social-economic production and social activities; Second, when using resources, we should recycle them as much as possible. Fundamentally speaking, the so-called concept of environmental protection and energy conservation is to explore how to save limited resources. With the in-depth development of China's social economy, environmental protection and energy conservation has gradually become an inevitable trend of the current social development. Under the supervision of relevant departments of the state and the support of various industries, the application of the concept of environmental protection and energy conservation in China has achieved certain results, and the application scope of this concept in the society is also continuing

to expand. In the process of social development, infrastructure construction as a part of the important composition, environmental protection, and energy-saving concept was applied to the construction of the whole process is one of the current social development goals, so it requires designers to intensify efforts to research how to environmental protection and energy-saving concept used in building water supply and drainage design, but also attaches great importance to the integration between design, on the one hand, to environmental protection and energy-saving concept used in structure design, On the other hand, the design of water supply and drainage should consider several related contents, such as the use of materials in the design of water supply and drainage, the operation and maintenance of related facilities, etc. On the whole, it is to analyze the overall resource allocation and utilization, not only limited to the structural design of building water supply and drainage.

3 The application significance of the concept of environmental protection and energy conservation in the design of building water supply and drainage

At present, China's social and economic development is rapid, the construction industry has gradually become an important pillar industry in China. But at the same time, with the rapid development of China's construction industry, which needs a large number of resources, but also causes serious pollution problems to the ecological environment. With serious environmental problems, people realize the importance of protecting the ecological environment, environmental protection and energy-saving concept also gradually thorough popular feeling, especially applied to the building water supply and drainage design, on the one hand, is to realize the economical use of limited resources, on the other hand, to further enhance the and utilization of the limited resources, so applying this concept to have a more obvious effect in the design of building water supply and drainage, mainly reflected in reducing construction costs, protect the ecological environment, one of the most obvious when belong to saving resource efficiency, this mainly lies in the building during the period of using, water supply and drainage system in its own the advantage of saving resource, It has a great impact on the utilization and conservation of water resources in the use cycle of buildings. On the whole,

water resources are very scarce in China, and people need to use water in production and life. Therefore, the application of this concept of environmental protection and energy conservation and the design of building water supply and drainage not only realize the reduction of water waste in the water supply system; At the same time, it also realizes the recovery and reuse of the reclaimed water in the drainage system. All of the above provide a guarantee for the development of the country to a certain extent and have positive significance for the development of the construction field.

4 The application status of building water supply and drainage system in China

4.1 water supply system

In the construction of building water supply, it is often caused by the construction of drainage overpressure, if the overpressure for a long time in the case, it will have a great impact on people's water quality, serious cases may appear water pipe damage, resulting in the waste of water resources. Based on the above, to avoid the above incident effectively, which requires the relevant designers in the building water supply and drainage design, especially for the material which needs to pay great attention to and should be considering the long-term use of material, usually, choose high strength, more durable high-quality material, if the use occurs during slack, conduit blowout, and so on, shall promptly take effective measures to prevent problems, in addition to some appliances when not in use, should be closed in time, to avoid the pipe in the use process wastewater, fundamentally to save water^[1].

4.2 Drainage system

In building drainage construction, often because of the pipeline crossing chaotic situation, the wastewater discharge work has a lot of obstacles, there are a lot of other pipes not introduced corresponding processing area, direct flow to the building area of rivers, lakes, etc., it is to a certain extent, to deepen the water pollution problem, as well as the follow-up, work smoothly caused great influence, besides, the wastewater in the class contains a high strength of acid liquid, pipeline under the long-term use can damage caused by the acid liquid, at the same time in the wastewater treatment, it is easy to leak, to some extent, this also leads to waste of water resources. Figure 1 is

the diagram of the domestic drainage system:

5 Application of the concept of environmental protection and energy conservation in the design of building water supply and drainage

5.1 Application of water-saving equipment

In the process of building water supply and drainage design, to combine the various factors to carry on the design, the design purpose is to save water resource and cost of a construction project, for example, will be living with pool construction in the construction of the underground three layers, and the building height can reach more than 20% of the entire pool with water, so it requires the designers in the design of water tank, in which you can install, variable frequency pumps by the pumped water use efficiency; In the design of the cooling tower, can adopt the way of independent design, for example in the construction of the underground three-layer position about 50 m for tank installation, at the same time, feed water pump room in the building roof set pressure pump, this design not only ensure the roof has enough water but also reflects the design concept of environmental protection and energy saving^[2].

5.2 Optimize the hot water supply circulation system

In terms of the current status of building water supply and drainage design in our country, many construction companies are on the hot water circulation system has been optimized, in which not only into the design concept of environmental protection and energy-saving, but also further domestic water to provide more convenience for people, but on the whole, there are still some wastewater problems, for example, hot water circulation system after installation, need to put off the cold water before actual use, can use hot water, so put off before the cold water also is wasted, so this would require the relevant workers to water-saving equipment research and application of the better to achieve environmental protection and energy-saving effect. Figure 2 shows the hot water supply circulation system:

5.3 Scientific utilization of residual pressure of municipal pipe network

At present, our country there are many buildings in the aspect of water transportation are not done by municipal water pipe, the main reason lies in the municipal water

pipe can't bear high pressure, thus unable to realize the all users to provide water supply, thus there are a lot of top users with water problems, based on the above, can through the municipal pipe network pressure, comprehensive analysis on the influencing factors of water pressure, on the one hand, the underlying user normal water, on the other hand, water pressure water pump to ensure through deepening high-level users demand, through this way to make both runs at the same time, to achieve water saving effect^[3].

5.4 Establish the reclaimed water recovery system

For building water supply and drainage design, should pay much attention to the water recycling system, on the whole, daily water consumption in the city is very big, is not only in life, and the production needs water, so through the construction of water recycling system, use of science and technology of natural water source to carry on the corresponding processing, will be processed after the water used for irrigation district greening, road cleaning, etc., on the one hand, save water efficiently save residents in life; On the other hand, it realizes the reuse of water resources and plays a certain role in environmental protection and energy conservation. Figure 3 shows the reclaimed water recovery system:

5.5 Set up the fire storage tank

In building water supply and drainage design in the process, most designers to pay attention to the perfect design of fire water reservoir, to achieve the purpose of environmental protection and energy saving, on the one hand, able to provide adequate water supply for fire control work, on the other hand, to ensure that residents used water in our daily life, but on the whole, because of the fire water utilization rate is generally low, if not will be part of the fire water into living water, can cause on the use of water resources, but also unable to achieve environmental protection and energy saving requirements; If another fire cisterns water storage for a long time, also can grow over time and water quality deterioration problems, and the water use in the life of the requirement of water quality is very high, so it requires the designer on the fire fighting design of water storage tank, considered as a whole, to effectively avoid the above problems, can design by way of sorting fire cisterns to reduce unnecessary consumption of water resources, not only ensure the quality of water used in the residents but also realizes the multi-purpose monohydrate, such as idle in the fire cisterns, water for

urban greening, surface cleaning, *etc*^[4].

6 Conclusion

To sum up, in the building water supply and drainage design process, designers should put environmental protection and the energy-saving concept is blended in among them water supply and drainage engineering are closely related to people's livelihood development, thus to effectively reduce the waste of water resources, also need to joint efforts of the broad masses of society, this paper first an overview of the environmental protection and energy-saving concept, analysis the application of the environmental protection and energy-saving concept in building water supply and drainage design, finally from the application of water-saving equipment, optimization of hot water circulation system, scientific use of municipal pipe network pressure, water recycling system, set up fire cisterns five angles proposed the

application of environmental protection and energy-saving concept in building water supply and drainage design, Better promote the sustainable development of social economy and improve the utilization rate of water resources in China.

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