

Analysis on Construction Management Points of Commercial Central Air Conditioning Project

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Abstract: Since the economic reform, the quality of people's life has been improving, which has put forward higher requirements for the function of large-scale public building facilities in China. Commercial central air conditioning is standard for each commercial place and large work site. In order to meet the needs of users and managers of the project, the design and construction links of commercial central air conditioning project are studied comprehensively. This paper analyzes the construction and management points of commercial central air conditioning project from three aspects: classification, construction management and related management of central air conditioning system, and discusses the construction problems that may be encountered in the construction process of commercial central air conditioning project, hoping to provide some reference for effectively improving the construction quality of the project.

1. Introduction

Commercial central air conditioning refers to the air conditioning device used for large-scale commercial use. It uses advanced technical equipment to regulate and control the indoor environment temperature, air humidity and air flow speed in the building, and then it chooses the temperature and environment that meet the needs of human body. Commercial central air conditioning has the characteristics of large frequency conversion, large space occupation, complex system and wide range of applications. It is mainly composed of one or more refrigeration and heating systems and more air conditioning control switches.

2. Analysis on the Types and Characteristics of Current Commercial Central Air Conditioning

At present, the types of domestic central air conditioning are mainly divided into commercial central air conditioning and household central air conditioning. The commercial central air conditioning can be divided into ground temperature central air conditioning and ice storage central air conditioning. The ground temperature central air conditioning is a new type of energy-saving air conditioning device developed in China for indoor heating, using the principle of reversible Carnot cycle, combining with ground temperature energy and adopting the principle of heat pump technology to adjust and control the indoor temperature in winter. By using the principle of heat exchange, the thermal energy in groundwater or soil is extracted for indoor heating. In summer, on the contrary, the underground soil or groundwater is used to take away the indoor heat, so as to achieve the effect of cooling and provide part of the domestic water for people's life. Ice storage central air conditioning uses the principle that ice can cool down to provide cold source for central air-conditioning system. Compared with the common central air-conditioning refrigeration, it adds a special location for ice storage. The successful research and development of ice storage central air conditioning has alleviated people's power shortage, saved people's power expenditure, and provided good economic benefits for social and economic development. Its research and development technology has been adopted by some developed countries in the world.

Commercial central air conditioning has the characteristics of good energy saving effect, high safety, simple structure design and multiple functions. First, it has good energy saving effect. The

world's brand fields mainly use the mainstream compressor designed by their own company. It can effectively adjust the control role according to the specific local differences, so as to improve the efficiency of commercial central air conditioning. It has better working performance, bigger power than that of the general domestic central air conditioner, stronger wind force and high practicability. Second, commercial central air conditioning is simpler and freer in structure design. Technicians combine the internal structure of air conditioner with its function effectively, so that it is more convenient and quicker to install. A one-stop installation has been formed, saving a lot of installation time. There is no need of employing professional safety personnel. Third, it has high safety. In the pipeline design, designers adopt a unique pipeline design, and there will be no leakage with the extension of service time, which greatly improves the utilization rate of the pipeline and the safety of air conditioning. Fourth, the increase of functions can meet the needs of all kinds of people. Through the setting of different gears, the effect is better, and the mutual conversion of the heating and cooling effect is realized ^[2].

3. Analysis on Design Points of Commercial Central Air Conditioning Project

In the analysis of design points of commercial central air conditioning project, researchers mainly focus on the preparation before the design and the work during the design.

3.1 Preparation before Design of Commercial Central Air Conditioning Project

First, the main R & D personnel of the commercial central air conditioning project should confirm the actual use objectives of the project, make reasonable design according to the use requirements (single refrigeration or heating function or dual cooling and heating function), be familiar with the relevant specifications and design standards, collect relevant data according to the actual project situation, comprehensively understand and master the actual power thermal and hydrogeological conditions, and know the common methods and equipment of temperature regulation and control, invite professional air-conditioning design experts to guide. After the above work is ready, the corresponding structural design can be developed.

Second, in the design of commercial central air conditioning, the staff draft the corresponding design document based on the full understanding of the air conditioning environment and basic conditions. The design document must mark the clear design direction and objective, introduce and analyze the general situation of the project in detail, mark the actual investigation situation of the construction project in detail, and strictly specify the reason for selecting the design method, as well as the corresponding basis for selecting the type of cold and heat source unit inside the central air conditioning and the gas treatment equipment, so that the relevant departments can effectively verify the basis of the design document ^[3].

3.2 Selection Criteria for Important Equipment in Commercial Central Air Conditioning Project Design

The design structure of central air conditioning system mainly includes the design of heating part and the design of air conditioning electrical system and control. Firstly, in the design of the heating part, the relevant design involves the calculation of cooling and heating load, the distribution design of air conditioning pipeline, the selection of refrigeration and heating units, the selection of management materials and models, and the selection of air handling equipment. Each link will have a crucial impact on the quality and use effect of central air conditioning in the later stage. Secondly, in the design of the air conditioning electrical system and control, the design should combine with the actual requirements of the important air conditioning performance, make a reasonable plan based on the market environment, the intelligent centralized control system of the internal structure of the air conditioning, the laying of the bridge, the selection of the power cable into the house, the layout of the strong and weak current lines on each floor, the selection of various control cabinets, and the installation of the control panel. If it is to transform the old buildings that have been used for a long time, in addition to the design of the above contents, it is also necessary to make a detailed planning for the installation structure of the air conditioner to ensure that it is consistent

with the style and environment of the traditional buildings.

4. Management of Commercial Central Air Conditioning Construction Project

Through analyzing the current situation of Heating Ventilation and Air Conditioning (HVAC) of central air conditioning project construction, relevant departments should give full play to the supervision responsibilities of the supervision company and strengthen the management of HVAC project construction. The details are as follows.

4.1 Current Situation of HVAC of Central Air Conditioning Project Construction

In general, the construction of HVAC project is carried out by professional units after submitting design documents, bidding, winning the bid and a series of audits. However, some construction units no longer focus on the construction quality and effect after winning the bid. They divide the whole project into many small projects to contract them out, so as to reduce their construction responsibilities and promote their own benefits. For example, in the design and installation of commercial central air conditioning, a whole central air conditioning project is divided into central unit, pipeline, indoor installation, insulation construction, circuit management and other parts by the contractor. This situation leads to the lack of centralized management of construction process and lack of cooperation awareness in the management of each part. The construction quality of the project is hard to meet the standard, causing more safety risks in the construction project. Since the design and installation process of construction project is jointly completed by several construction units, there will be different problems exposed in the subsequent maintenance management of the machine, bringing great difficulties to the normal development of machine maintenance. Even if the relevant personnel have repaired the fault point, it will not achieve the expected effect. The service life of air conditioner is shortened. Therefore, in the construction of HVAC project, relevant management personnel must strengthen the management of construction project, give full play to the role of construction company in the project, establish corresponding rules and regulations, and strictly develop construction project management in accordance with construction specifications and use standards, ensure the construction quality, and do a good job of maintenance work in the later stage of the project ^[1].

4.2 Fully Perform the Supervision Responsibilities of the Supervision Company

As the supervision and management department of the construction project, the supervision company must strictly perform its own supervision responsibilities and effectively control all aspects of the project. As professional project establishment company, its business skills are beyond doubt. Compared with the general project management personnel, the professional technology is more reliable. Therefore, the supervisors should full perform their own value, start from the raw materials, control all construction links and use contents in the project, ensure the construction quality, effect and safety based on the coordination and cooperation with the relevant parts.

4.3 Strengthen the Management of HVAC Project Construction

The first is to establish and perfect the relevant management system, and require the relevant management personnel to strictly comply with the management standards and the relevant management system to perform the supervision duties. The second is to make clear the management responsibilities of each relevant manager, implement the responsibilities into the actual work management, do a good job of mutual independence and cooperation, so as to have responsibilities to check and laws to follow. The third is to establish a sound leadership and management team, correct the supervision attitude of the management personnel, make them treat work strictly, correctly recognize the significance of project management for the construction, and improve the attention to the supervision work.

5. Conclusion

To sum up, in the project construction management of commercial central air conditioning, this paper expounds the types and characteristics of central air conditioning, and then analyzes and discusses the design management and construction management of commercial central air conditioning in stages, so as to have a deep understanding of the design structure and construction project supervision status of commercial central air conditioning. At the same time, it has a new cognition of the importance of strengthening the construction management of commercial central air conditioning project. The relevant construction units must focus more on the central air conditioning design and project construction.

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