

Research on Construction and Quality Control of Central Air Conditioning System

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Abstract: This paper discusses the key aspects of the design, construction and quality control of central air conditioning system in order to improve the overall performance and reliability of the system. Through the detailed analysis of the composition, construction process and quality control measures of the central air conditioning system, the importance of reasonable design and accurate construction to ensure the efficient operation of the system is emphasized. It is hoped that the conclusion of the study will have reference value for guiding the design and construction of the actual central air conditioning system, and can provide theoretical guidance and operational suggestions for the relevant personnel in the construction industry.

Keywords: Central air conditioning; Design; Construction; Quality control

Introduction

As an important facility for regulating indoor air environment, the operation effect of central air conditioning system is closely related to the rational design and construction of the whole system. Therefore, we must attach great importance to the planning, design, construction and installation of the central air conditioning system, deeply understand the various problems that may occur during its installation, commissioning and operation, and take effective prevention and solution measures to ensure the efficient and stable operation of the system.

1. Central air conditioning construction management content

1.1 Preliminary Preparations

In order to ensure the smooth installation and construction of the central air conditioning system, it is necessary to do a solid project preparatory work. The construction team should have a deep understanding of the special requirements of the central air conditioning system construction, and in combination with the actual situation of the construction site, formulate a scientific and detailed construction plan and strict construction specifications to ensure that the construction team strictly follows the specifications and standards for operation. The construction team will refine the entire construction process into clear and clear construction stages, and set specific stage objectives and completion time limits for each stage to ensure the orderly progress of the project. The construction team should prepare a comprehensive construction plan, conduct a comprehensive review of all project documents and materials involved, and select the best construction methods to carry out preliminary preparation work, laying a solid foundation for efficient and standardized construction.

1.2 Specific construction and installation phase

Central air conditioning system installation and management process, the construction and installation stage can be described as the most important. Only on the basis of sufficient preparatory work, strictly follow the relevant rules and regulations to standardize the construction, in order to ensure that the project progress and quality are both up to standard. In order to ensure the safety, civilization and order of the construction site, the management unit should join hands with relevant departments to strengthen construction supervision and management. Especially for the key links that affect the long-term operation and maintenance of the central air conditioning system, it is necessary to closely monitor and eliminate potential hazards. Such rigorous and meticulous management measures can effectively control the whole construction process and ensure the smooth completion of the project.

1.3 Acceptance and evaluation stage

After the construction of the central air conditioning system is completed, the project acceptance and evaluation work is essential and should be handed over to the department with professional qualifications. The management personnel responsible for this work need to coordinate all aspects, carefully record all the details that may affect the quality of the project, and timely submit to the relevant departments for rectification. For key problems that may cause major safety accidents or affect the quality of the air conditioning system, the construction team shall conduct in-depth inspection and evaluation, and file the results and hand them over to the project construction unit. The construction team also needs to conduct a comprehensive evaluation of the overall effectiveness of the central air conditioning construction and management. After completion, the construction team should also provide the necessary after-sales service and consultation to ensure the stable operation and efficient maintenance of the system.

2. Technical points of central air conditioning system installation

2.1 Preparations Before Installation

Before starting the installation of the central air conditioning system, the construction management team must make adequate preparations to lay the foundation for the smooth progress of the installation process. The management team should accurately measure and determine the distance between the units of the central air conditioning system, and prepare the necessary installation tools in advance. Ensure that the layout of the refrigerated equipment room is reasonable, easy to operate, and convenient for future maintenance. At the same time, optimize device layout and minimize pipeline length. In the assembly process, the operator should strictly control the spacing of the unit, and ensure sufficient lighting and good observation Angle to ensure the normal operation and maintenance of the unit.

2.2 Installation of the central air conditioning system

In the installation process of the central air conditioning system, the installation of key components such as units, pumps, pipelines is particularly important, and the installation of units is particularly critical, which directly affects the overall operation effect of the system. In the unit installation stage, the operator should first accurately carry and hoist the unit equipment in accordance with the predetermined position, and carefully place the anchor bolts. After completing the above steps, it is necessary to firmly fix the footing with cement to ensure the stable operation of the unit. Considering that the unit is placed on the ground and is prone to moisture or impact, it is necessary to lay a moisture-proof and anti-impact cushion on the ground. In order to minimize the potential damage to the unit during the lifting process, the operator should use the wire rope above the unit for lifting to ensure safety and reliability.

3. Central air conditioning system installation quality control measures

3.1 Construction organization

In order to ensure the construction quality of the central air-conditioning system, the construction team must implement effective quality control measures. During the planning and design phase of the construction organization, the construction team should create a construction and installation plan that meets the actual needs and makes up for the possible defects of the management system. The construction management team should formulate a set of scientific construction organization plan to prevent the occurrence of quality control problems. The construction personnel must strictly comply with the national regulations of the central air conditioning installation, cleaning, pressure testing, commissioning and operation of various steps, this series of measures aimed at continuously improving the quality of construction standards.

3.2 Construction Training

The quality of the project, especially the installation quality of the central air conditioning system, is one of the key factors for the successful delivery of the project. The professional skill level of the construction team directly affects the quality of the project. In order to improve the professional skills of the construction team, the construction enterprise should implement a systematic training plan to comprehensively improve the operation ability and professionalism of the workers. Collective training can effectively improve the installation skills of workers, enhance their safety awareness and responsibility, and ensure the smooth progress of installation work and high quality completion. If there are problems in the installation process due to the lack of skills or professional literacy of workers, it will affect the progress of the project and cause time delay, and may cause safety accidents, resulting in casualties and property losses, and bring huge economic losses to the enterprise. Therefore, construction enterprises must attach great importance to staff training, through professional knowledge training and construction details control, effectively avoid similar problems, to ensure the safety, efficiency and high quality of the entire installation process. The training content should cover the specific installation requirements of the central air conditioning system, relevant technical specifications, safe operation procedures, etc., and be explained

in combination with actual cases to help workers master theoretical knowledge and practical skills, and improve professional level and operation ability. Enterprises should regularly organize training and assessment, check the training effect, and improve the training content and methods according to the assessment results, constantly improve the training effect, ensure that the construction team has a high level of professional skills, and escort the quality of engineering projects.

3.3 Material quality control

The assembly process of the central air conditioning system has extremely strict requirements for the selection and management of materials, which directly affects the overall quality and operation efficiency of the system. Therefore, the material management personnel must have professional knowledge and meticulous responsibility, in strict accordance with the design specifications and construction standards for material procurement, acceptance and storage. In the material procurement stage, enterprises should choose reputable suppliers, and carry out strict quality inspection on the purchased materials to ensure that they meet the relevant standards and technical requirements. In the material acceptance stage, the specification, model, quantity and other information of the material should be carefully checked, and the surface state and packaging of the material should be comprehensively inspected to ensure that the material is intact. In the material storage stage, enterprises should establish a sound material management system, classify materials for storage, and regularly check the status of materials to prevent damage due to improper storage of materials. Materials managers also regularly inspect all engineering materials, assembled parts and equipment used on site to ensure that they meet design specifications and user specific requirements. Materials found to be damaged or have safety hazards should be replaced or repaired immediately to prevent affecting the project progress or causing safety accidents.

4. Closing remarks

All in all, in the field of construction, the application of central air conditioning systems has gradually become common, and has become a core component of modern construction projects. The analysis shows that the installation of a central air-conditioning system helps to create a comfortable and efficient environment, which is extremely important for building owners. The construction personnel should follow strict construction specifications during the installation process, carefully carry out quality management and installation operations to ensure the efficient operation of the system, achieve the stability and long-term performance of the central air conditioning system, and thus support the overall objectives of the construction project.

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