Exploration on Construction Technology and Management Countermeasure of Civil Building HVAC Engineering

Huahua Zhang

Henan Civil Air Defense Architectural Design and Research Institute Co., Ltd. (Xinjiang Branch), Xinjiang, China.


Received: July 12, 2023
Accepted: August 9, 2023
Published: September 7, 2023

*Corresponding author: Huahua Zhang, Henan Civil Air Defense Architectural Design and Research Institute Co., Ltd. (Xinjiang Branch), Xinjiang, China.

Abstract

With the development of science and technology and society, people's way of life has undergone great changes, the improvement of quality of life, the demand for housing is also getting higher and higher, with the development of civil buildings, the demand for it is also getting higher and higher, and more and more construction projects, among which HVAC construction is one of the hot spots. The orderly progress of the technology and management of HVAC engineering can provide relevant conditions for the building in a sense, and form a set of effective measures to maximize the use value of energy. HVAC construction technology can prevent the excessive consumption of energy, improve the efficiency of use, so that the building HVAC project can be better implemented, HVAC construction as an important core of civil construction projects, related to the final construction quality of the project. In the construction of HVAC engineering, the staff should master the relevant construction technology, do a good job in construction management, provide support for the construction of civil buildings, and ensure the quality of HVAC engineering projects. The final role played by HVAC engineering can not be ignored, it will not only affect the specific application of building facilities, but also bring certain damage to people's living environment. Therefore, in the construction stage, it is necessary to effectively use HVAC engineering construction technology, and under strict management, so that the construction quality can meet the corresponding standards and requirements. This paper focuses on civil building HVAC engineering, aiming at improving the level of civil engineering construction in our country and ensuring people's quality of life.

Keywords

Civil building, HVAC engineering, Construction technology, Management countermeasure

1. Importance of HVAC engineering construction technology in the project

From the current situation, HVAC engineering construction technology is a very important part in the operation of construction projects. The construction technology of HVAC system plays an important role in the operation of the whole project, and its construction quality will affect the effectiveness of the whole construction process. However, from the perspective of the current construction industry, there are problems such as lack of technology, such as the construction technology system used is not reasonable enough, there are many hidden dangers in quality, which directly affects the quality and level of construction projects [1]. Therefore, the role of HVAC engineering in the construction can not be ignored, and should be more strengthened, to use advanced science and technology and management methods, the HVAC engineering for comprehensive monitoring, mainly the use of advanced technology, the technical
control to a higher level, to ensure the quality of HVAC engineering construction. In recent years, the global pollution problem has become increasingly prominent, and people have begun to pay attention to the protection of the environment, no matter in which industry, environmental protection and energy saving are important goals and pursuits of sustainable development. While actively pursuing green energy saving system, civil buildings can rationally apply HVAC engineering technology to maximize energy saving technology, so as to provide more support for the improvement of profits and effects of the entire project.

2. Construction technology of civil building HVAC engineering

2.1 Select the appropriate installation and construction technology

In the HVAC project, in order to ensure the quality of the project, the first step is to pay attention to the selection of construction technology, in the process of selecting installation construction technology; we must strictly grasp the construction plan. Then, the design drawing is discussed and studied rationally, so as to pay attention to the specific plan and demand of building HVAC engineering. Therefore, the design scheme is very accurate, and after the fine integration of the drawings, the construction technology plays a better guarantee role. In this way, the installation of HVAC equipment can be carried out smoothly and orderly. In this case, the selection of the installation construction process is placed in an important position, so that the components of the HVAC system have a reasonable choice of support and a clear direction in the installation and other links [2].

2.2 Air duct Installation technology

In the HVAC project, when the installation work is carried out, it is mainly to ensure that there is a good air circulation in the building, which is related to people's living requirements. Therefore, the pipeline system can be used to gradually enhance the flow of air. In the installation work, the technical work should be accurately positioned, and the installation direction should be planned and designed. Secondly, the ventilation pipe should be kept at a level with the longitudinal section of the house, etc., and then the ventilation pipe should be efficiently connected with the longitudinal section of the house. When selecting the material, pay attention to the stability and safety of the material. In general, with the high wind strength of the rubber hose material as the connection point, the air reservation in the bending part of the air duct should be effectively designed and planned. It is usually confined to a lower area, so that it is subjected to less resistance when turning, and will not produce the corresponding effect. In the installation of the pipe, it is necessary to refer to the installation method of the ventilation pipe; usually the two pipes should be kept on a horizontal plane, at the place of turning, or at the place of climbing, and installed on the basis of 45 degrees. During the installation process, the installation position should be designed on a horizontal plane with the direction of the water flow, and some valves and filters for opening and closing Spaces should be set near it. During installation, it mainly focuses on the inside of the water tray, so that the water in the air conditioner can be reasonably discharged, and it is also conducive to the later maintenance and maintenance work.

2.3 Insulation construction technology

In the building HVAC project, thermal insulation construction is also a key link that can not be ignored, in general, it will have a certain limitation and influence on the actual use of the HVAC system. When using thermal insulation construction technology, it is necessary to start with a more complex water system, which is also a key node closely related to thermal insulation construction. In actual operation, the staff should conduct detailed discussions according to the details of the operation. Managers have played a role in supervision, and the behavior of construction personnel must comply with norms and requirements. A series of construction should be carried out before the installation of the ceiling keel, and a series of construction should be carried out before the pipeline pressure test [3]. Special attention should be paid to the cover of the valve insulation layer; the insulation material should meet the specific requirements, but also pay attention to the corresponding selection and use of adhesives, cushion wood, etc.

2.4 Tuyere installation technology

In the construction drawing audit, the content of the drawing design should be closely related to the actual situation. When the building enters the use state, its ventilation part and the decorative surface of each part should be coordinated. Usually, covering the living room, study, ceiling and other corresponding parts, these shapes are more complex. In the indoor space also includes the wall decoration and other related parts, in the installation of the fan, the drawings and decoration drawings must be comprehensively reviewed, in line with the standards and requirements, before installation. After the installation work was successfully completed, the construction personnel communicated with the holes reserved in the HVAC pipeline, thereby preventing air leakage in the pipeline, and effectively controlling the flow of nat-
ural air and improving the performance of the air conditioner. In addition, the location and specific specifications of the reserved holes will also cause problems related to the construction. In the design drawings, the drawing setting of the reserved holes should be done well, and the location of the reserved holes should be accurately positioned to avoid encountering some difficulties in the construction process. Construction and decoration should communicate with each other, connect each link organically, set the size and specifications according to the requirements of the HVAC project, and strengthen the verification and inspection to ensure the smooth progress of the installation work.

2.5 Ventilation engineering construction technology

First of all, it should be connected with the ventilation system of civil buildings, and establish the corresponding technical application and theoretical model. The establishment of supervision, control and application system is an important reference for the smooth and orderly application of ventilation engineering construction technology, and the corresponding complete technical application and management responsibility mechanism. The staff has a clear and clear responsibility and attaches importance to the technical control of the site, so that the quality of civil building HVAC engineering has been a good system guarantee. Secondly, it is necessary to cooperate with the support work of ventilation network and do a good job of ventilation support. In the manufacturing and installation, it is necessary to choose the material that meets the installation requirements, and pay attention to the effect of the entire ventilation network when the specification and quality meet the requirements. Then, it is established under a firm support to provide stability and reliability support for the ventilation pipe network, and it is necessary to do anti-corrosion work for the parts that are prone to corrosion, so that the external structure of the pipeline is effectively protected in a safe case and the smooth use of the pipeline. Third, when installing the ventilation pipe, the joint point and deformation point should be soft connected to prevent the resistance in the pipe from increasing. Finally, it is necessary to do a good job of connecting the fan coil and control the bracket for the work. Then the distance from the decoration ceiling, through the effective construction of the ventilation system, tuyere, lighting system and other parts, will not have adverse effects on each part, and has a sense of beauty.

3. Construction management countermeasures of civil building HVAC engineering

3.1 Do a full range of drawing audit work

Drawing review is an important link that can not be ignored, it will affect the construction and management of HVAC projects from all aspects. The staff should summarize the review of the construction drawings as a key task, and if there is any problem, be sure to communicate with the construction company for relevant negotiations and communication. All construction work is centered on the setup of architectural drawings, which not only show the corresponding frame structure, but also clearly show the design and requirements of the various buildings. Therefore, before the construction work, the drawings should be effectively controlled to meet the relevant requirements and specific guidelines. First, the design content of the architectural drawings is linked with our country's norms, and targeted proofreading is carried out, so as to improve the overall quality of the building, improve the design effect of the building, and provide a set of guarantees for the future work. Secondly, the design of the pipeline is analyzed and demonstrated in detail. Before the implementation of HVAC projects, we should do a good job of technical disclosure between the construction unit and the design unit to prevent problems. All in all, only with the drawings, systematic review and communication, in order to establish a sound control system, from the whole, to fully ensure the quality of the project and the overall effect, so that the HVAC project to obtain the economic benefits and social benefits of the double guarantee.

3.2 Effective control of construction materials

In order to ensure that the final quality of the HVAC project meets the specifications, the selection of building materials should be in accordance with strict standards and requirements. Before the construction, the procurement work is a very important and very important link, the staff should be consistent with the national quality standards, strict control of the quality and specifications of materials, improve the awareness of material control, and strictly perform their work responsibilities. The materials that meet the specific engineering requirements and standards are incorporated into the engineering construction, and on this basis, the comprehensive inspection of the material procurement is done. It has to be tested before it can be used [4]. To set the quality level reasonably, when choosing suppliers, we should give priority to good reputation and good quality, and find high-quality and qualified materials after comparison and discussion, so that the materials meet the construction requirements. From the point of view of HVAC engineering construction, thermal insulation materials play an important role in construction. In the selection of insulation materials, we should pay attention to its comprehensive performance, mainly has a strong fire prevention ability, in the pipeline construction, so that it can provide protection and support for the smooth implementation of civil buildings.
3.3 Stable implementation of construction technology and standards

Construction workers should continue to receive continuous education, learn and master new technical methods. In the case of the control of technical standards, the application and construction of technology are carried out according to the relevant specifications, and the supervision and control of technology should be done well in the specific construction process, so that the technology can play the greatest practical role in meeting the needs of construction. Only in this way can we mobilize the enthusiasm and enthusiasm of employees for all kinds of work. Under normal circumstances, construction enterprises should also carry out technical management work in an orderly manner, mainly to establish a sound technical management system; set up a management organization, in each construction link must have some technical personnel supervision, so as to ensure the implementation of construction technical means and specific standards.

3.4 Improve the construction capability of technical personnel

In the construction process, the quality and ability of the construction personnel have a great relationship with the quality of the whole project. Therefore, it is necessary to focus on improving the working ability of construction personnel, and equipped with a sound professional skills training system, so that construction technicians can make a correct response to emergencies in the process of engineering construction, so as to avoid some problems in the construction process. At the same time of strengthening the improvement of technology, the problems and mistakes are linked to take good precautions, so that the defects in the construction process can be reduced accordingly, and the strong risks can be effectively controlled. Therefore, it is necessary to take the initiative to improve the construction ability of technical personnel, in the case of comprehensive training and self-upgrading, in the construction of HVAC building projects, to obtain certain operational support, and then form a stronger construction team.

4. Conclusion

To sum up, in the operation process of civil construction projects, the final quality and effect of HVAC projects are related to the corresponding performance and value of civil buildings. The construction unit should do a good job in the orderly development of the HVAC project, and should be combined with the corresponding characteristics and technical requirements of the project, so that the work is carried out in an orderly manner, improve the intensity of construction management, and grasp the quality of the construction under the corresponding effect. It is necessary to correctly grasp the construction of HVAC engineering in civil building engineering, and make use of advanced technology and good construction management to prepare for high-quality engineering construction.

References