Journal of World Architecture

Review Article

Construction Cooperation Strategy between Equipment Installation Engineering and Civil Engineering

GuiXiang Yu

Chongqing Energy College, Chongqing 402260, China

Abstract: As we all know, the construction and construction process of civil engineering projects are very complicated, so coordination and cooperation of different professions and types of work are required during construction. Based on this, the article focuses on the strategy of equipment installation engineering and civil engineering construction cooperation from different construction stages and hopes to help.

Keywords: *equipment installation engineering; civil engineering; construction coordination; strategy*

Publication date: January 2018

Publication online: 31st January 2018

Corresponding Author: GuiXiang Yu, txljay@126.com

0 Introduction

For the construction and construction of construction projects, it is mainly embodied in civil engineering, equipment installation engineering, HVAC engineering, water supply and drainage engineering, building electrical engineering, and measurement engineering. In terms of actual construction and construction, it is required that each type of work of the different professions cooperates with each other. Only in this way can the construction project be more orderly and once the coordination effect is not satisfactory, it will directly affect the construction of the construction project. Especially in the context of the rapid development of modern design and construction technology, more structures and processes are more widely used, so the role of construction coordination and coordination has gradually emerged. Although the equipment installation project is only a combination of construction and engineering, it always plays an important role in the construction project and is closely related to other professions and types of work, especially civil construction. It can be seen that it is of practical significance to thoroughly study and analyze the construction cooperation strategy between equipment installation engineering and civil engineering.

1 Coordination strategy for construction preparation

Generally speaking, the design stage of the construction drawing of the construction project requires the technical requirements of the design and expression of the civil engineering structure by different professional design workers of the equipment installation project. In the process of preparing for the installation before the construction work, the content includes the following aspects:

1.1 First, the technical preparation processes

Before carrying out the civil construction, the equipment installation staff and other professional staff members need to review the construction drawings with the civil construction technicians, effectively avoiding the omissions and conflicts with the construction of different professions. In view of the existing problems, it is necessary to use the supervision method or the construction party and the design party to communicate, to ensure the timeliness of the changes, and to provide necessary protection for the smooth development of the construction. In particular, the ventilation and air-conditioning equipment components are reserved, the water supply and drainage pipeline holes are reserved, the electrical equipment and the line fixtures are pre-buried, the wall bushings are pre-buried, etc. Once the problem

is found, it must be communicated with the relevant departments and then the problem solving[1].

1.2 Second, organize the preparation process

As an equipment installation staff, it should have a wealth of civil engineering knowledge to ensure that the civil construction drawings can be accurately understood, and the civil construction schedule and construction methods are mastered, especially the ground, beam, and roof construction methods and connection methods. The feasibility of the equipment engineering installation method in the civil construction of the project is analyzed. Before the construction work, it is necessary to prepare the embedded parts, spare parts, and pre-buried pipes required for civil construction[2]. In addition, the special construction plan should be prepared before the construction with the pre-buried reservation. Equipment installation professional construction workers also need to combine construction plans and construction drawings technical documents, implementing disclosure work of technology and product protection with the cooperation of construction teams, recording the construction technology delivery process in detail, completing the issuance of construction work assignments.

1.3 Third, equipment supply preparation

Before installing the equipment, the required materials and tools should be prepared to ensure timely delivery of the mechanical equipment to be installed on the site, and unpacking inspection, disassembly, and cleaning. After completing the equipment unpacking inspection and disassembly work, it is necessary to remove all internal iron scraps and brushed rust inhibitors, and after cleaning, refuels and lubricate and finally complete the assembly and installation work[3].

2 The coordination strategy of the basic construction links

In the process of construction and construction of the construction project, the basic construction is specifically refined into the following aspects: (1) Digging the foundation pit; (2) installing the template; (3) tying the steel bar; (4) reserving the hole template and the anchor bolt installation; (5) concrete watering; (6) curing; and (7) formwork removal.

In the process of implementing the construction and construction of the basic project, as the equipment installation and construction personnel, it is necessary to cooperate with the foreman to complete the work of pre-buried the water supply and drainage pipe through the wall casing. If it is a structural safety hole or a large hole, then it should be detailed in the civil engineering drawings and submitted to the civil engineering for construction[4].

The civil engineering department should also reserve the holes required for the construction of the equipment installation project and require the equipment installation and construction personnel to cooperate with the pre-buried pipeline construction in the foundation before the civil construction. In the process of fixing the steel casing, the detailed drawings of the installation nodes and the civil construction pre-embedded casing reinforcement drawings should be reasonably drawn. In the practice process, to effectively avoid the cumulative error of the horizontal position, the position of each casing center point should be detailed marked to provide the necessary guarantee for the casing installation position review, and the horizontal accumulation error can also be effectively controlled to each cross-axis[5]. In the process of construction, the drawings should be checked to ensure that the civil construction is exhausted, and the reserved location, specifications, dimensions, and elevation of the holes can meet the design requirements of the drawings. To avoid adverse effects on the civil engineering foundation, the repair of the wall can only avoid the leakage of the wall.

Taking the construction of the foundation project as an example, the procedures for the construction of buried water supply and drainage pipes can be divided into the following parts [Table 1].

3 The cooperation strategy of the main construction link

The specific requirements of the progress of the construction of concrete for pouring concrete and the flow time operation procedures should be comprehensively considered, and the pre-buried reservation coordination operation should be actively carried out, which is also the key content of the equipment installation engineering project. To this end, in this process, the equipment installation project should be reorganized into the following aspects.

First of all, the civil structure template is supported. The specific work includes the line lifting project: (1) Reserve

Table 1: Construction schedule of buried water supply and drainage pipelines

Construction process	Specific name
Process 1	Construction preparation
Process 2	Construction site surveying and mapping work
Process 3	Prefabrication of pipes
Process 4	Construction site positioning pre-buried and laying
Process 5	Review correction
Process 6	Tissue tightness test and water injection hydraulic test
Process 7	Delivery of concrete for pouring concrete

the location of the hole for the water supply and drainage pipeline, reserve the wooden box for each hole based on the size of the discharge line; (2) reserve the size and position of the air-conditioning drain pipe; and (3) the lighting box is placed at the relevant position such as the distribution box.

Second, the sinking beam and the bottom ribs are laid. It is necessary to ensure the laying of pipelines and the reinforcement of pre-embedded components. It is necessary to lay the drainage pre-buried pipelines effectively according to the laying work and at the same time to carry out the pre-burial work of the bushings. In addition, the pre-embedded air-conditioning drain pipe casing is pre-buried, the weak electric wire pipe, the socket line pipe, and the lighting are pre-buried, the lightning protection grounding net is welded, and the embedded components of the large equipment are processed and fixed[6].

Finally, the gluten is finished with the film. The specific content is to strictly check the quality and process of the previous two construction stages, fill in the construction omissions in time, ensure the effective handover with the civil engineering, and carry out a comprehensive inspection of the steel bars to carry out concrete pouring operations. In the process of concrete pouring, the equipment installation personnel should track in time to ensure that the pre-buried project is more perfect[7]. On this basis, it is necessary to keep in touch with the civil construction workers. When the civil construction is up to standard, it can also be reasonably reserved to promote the reserve work.

After the completion of the structural construction and the strength of the concrete are compatible with the requirements, the civil works can carry out the demolding and laying work, and implement the construction work of the masonry project. As the equipment installation and construction personnel, it is necessary to master the progress of the civil construction masonry and cooperate with the civil works to actively carry out the construction of related engineering projects[8]. It should be noted that the equipment installation project mainly includes three parts:

1. Clean and release the wire after demolding: The equipment installation staff should complete the garbage cleaning and masonry position line placement work as soon as possible and then in the process of checking the position of the masonry, grasp the correct position, and dimensional correctness of the pre-buried hole during the structure pre-burial process, so as to avoid the completion of the masonry. After the body is finished, the masonry repair hole is opened. In addition, it is necessary to check the patency of the reserved water pipes and line pipes, and adopt corresponding protection strategies for the semi-finished products, so as to avoid the garbage or the mortar entering the pipes in the construction of the masonry so that the pipes are blocked.
2. Masonry construction[9]: As equipment installation and construction personnel, the construction progress of civil masonry should be mastered and tracked in real time to avoid the leakage of holes. At the same time, it is necessary to cooperate with the civil works to effectively reserve different types of holes.
3. Construction before masonry plastering: For masonry projects, the construction before plastering must have relevant professional cooperation, especially equipment installation and construction personnel and civil construction workers should actively implement and implement the handover work at various stages. The equipment installation staff needs to complete the laying work of the wall pipe and the line pipe in conjunction with the drawings. In the whole process, if the civil engineering profession cannot guarantee the integrity of the horizontal line, it will affect the height of the socket panel and the switch, making it difficult to carry out the construction according to the drawings. In this case, after the installation is completed, the height will appear in different heights[10]. If the civil engineering profession does not produce gray cake, it will affect the switch and socket panel after the construction is not in the same plane as the wall after the batch. Constrained

Table 2: Project acceptance conditions

Acceptance conditions	Specific performance
Condition 1	Technical file and construction management materials should be complete
Condition 2	Supervision information should be complete, especially the status of completion data review
Condition 3	Qualification certificate and test report for the use of building materials, components, and equipment
Condition 4	Acceptance documents for the survey, design, and construction of important parts of the project

by the above factors, it will inevitably lead to a decline in the construction quality of the project, which will have a serious impact on the overall level of the project.

4 The cooperation strategy of completion acceptance

The completion acceptance of any project is a very critical link, so the necessary conditions should be met in the process of project acceptance, as shown in Table 2:
For the completion acceptance of construction projects, in the process of implementing the completion acceptance of the installation project, it is necessary to have a corresponding test report[11]. The equipment installation profession should effectively cooperate with the civil engineering project, implement the project acceptance, and organize and save the relevant project data, to provide necessary protection for the installation of large equipment.

5 Conclusion

With the rapid development of modern society, construction technology has achieved initial and perfect progress. In this situation, the new process and structure have been widely applied, and the importance of coordination and coordination in the construction phase has gradually emerged. Therefore, in the course of practice, it is also necessary to ensure the construction cooperation of various professions, to fully optimize the level of construction and construction, and to construct engineering projects with considerable quality and efficiency.

References

[1] Caihui L. Strategic analysis of effective coordination between electromechanical equipment installation and civil engineering construction [J]. Jiangxi Build Mater 2016;22:72.

[2] Wanguang L, Hongli W. Strategic analysis of effective coordination between electromechanical equipment installation and civil engineering construction [J]. Archit Eng Technol Des 2017;26.

[3] Wenjing L. Strategic analysis of effective coordination between electromechanical equipment installation and civil engineering construction [J]. Taxation 2018;18.

[4] Mingming Z. Talking about the coordination and management of construction equipment installation and civil engineering construction [J]. China Sci Technol Invest 2016;15.

[5] Dan S. Analysis on the coordination strategy of electrical installation and civil construction in substation [J]. Eng Technol 2016;11:257.

[6] Jingchao G, Yanbao Y. Discussion on technical points of construction coordination of civil engineering and electromechanical equipment installation engineering [J]. Jiangxi Build Mater 2016;3:76.

[7] Wenbo C. Discussion on technical points of construction coordination of civil engineering and mechanical and electrical equipment installation engineering [J]. Archit Eng Technol Des 2017;19.

[8] Changbo Z. Discussion on technical points of construction coordination of civil engineering construction and mechanical and electrical equipment installation engineering [J]. Eng Technol 2016;12:265.

[9] Yaolong J. Research on application and installation technology of automated electromechanical equipment in construction engineering [J]. Autom Instrum 2016;9:172-3.

[10] Dong C. Wastewater treatment engineering equipment manufacturing and construction and installation engineering in wanjiazhai hub area [J]. Water Treat Technol 2017;5:133.

[11] Chengqian L, Qi F, Hanbin L. Change propagation path of equipment installation engineering [J]. J Civil Eng Manag 2018;3.