

# *On Construction Management and Quality Control of Building Electrical Engineering*

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**Abstract:** Electrical engineering is an important part of construction engineering, and the construction quality of electrical engineering is related to the whole project quality. This paper expounds the construction management and quality control of the electrical engineering, and considers it from the whole life cycle, that is, the discussion content of this paper can provide reference for similar projects, from the aspects of design, construction and maintenance.

## 1. Introduction

Project quality is the basic element of construction engineering; the quality of the operation effect of construction engineering has a controlling role; the quality is also the life of a construction enterprise. Electrical engineering is used frequently in the construction operation period, and it is also a concealed project. Once the quality problem occurs, it will cause great trouble to the operation of the whole building. This paper analyzes the construction management and quality control of electrical engineering from the perspective of design, construction and maintenance, in order to provide theoretical support for the quality assurance of electrical engineering.

## 2. The Root Cause of Electrical Engineering Quality Problems

In the construction of electrical engineering, quality problems are common, and the main forms are as follows. The first is the quality problems in the process of distribution box installation. In the installation of distribution box, it is easy to make mistakes if you don't pay attention to it. For example, the damage and deformation after the installation of the distribution box, and the incomplete installation of the distribution box. This will be exposed in the future. The second is the problems in pipeline laying. If the metal pipe interface used for laying is not properly handled, the pipe joint shall be welded without treatment. The improper treatment of steel pipe grounding is often found in the construction process. The third is the problems in the construction of lighting system. The final application result in the construction project is lighting. If the lighting system has quality problems, the quality of the whole electrical engineering will be greatly reduced. For example, unreasonable setting of switch position and socket position will cause great trouble and potential safety risks in the process of using some parts. The fourth is the problems in the lightning protection and grounding of buildings. With the lack of land resources, the higher the buildings are built in the city, and the lightning protection measures are very necessary. The problems in the

installation of lightning protection facilities include improper selection of materials, improper installation position of lightning protection facilities and improper maintenance of lightning protection facilities.

The root cause of these engineering quality problems is mainly caused by two factors, one is human factor and the other is material factor. The main factors of human are the weak awareness of construction quality, low management level and low level of construction technology. As the auxiliary facilities of construction engineering, many construction enterprises do not pay attention to it. It is considered that as long as the quality of the main building passes the standard, the secondary facilities are ignored. But in the process of building use, electrical equipment is the same as the user. Once the quality problem occurs, it will cause great trouble to use. [1] As we all know, China is seriously short of high-end technical talents, and most of the workers in the first line of construction engineering production are lack of technical level, which is also a factor affecting the quality of the project. The main factors of the object are the quality defects of building materials. There are hundreds of common electric light switches on the market, and many of these products are not qualified. It is very possible to choose cheaper products due to the cost problem during the construction process, which will lay a potential for the project quality problems. In the process of use, it is easy to cause accidents due to these residual materials, resulting in unnecessary losses.

### **3. Electrical Engineering Construction Management Measures**

In order to ensure the quality of electrical engineering, construction management must be strengthened.

At the beginning of electrical engineering construction, the overall planning work should be done well, including the review of design drawings, the selection of construction personnel, the construction schedule, the preparation of building materials, and so on. For some reasons, the design of some construction drawings is often contrary to the actual situation on site, which should be put forward and corrected as soon as possible in the construction process. In the electrical installation, we should select some construction personnel with excellent technology and strong quality awareness, and the selection of electrical engineering materials should be combined with relevant regulations, instead of blindly pursuing low cost.

Before construction, it's necessary to do a good job in the formulation and implementation of electrical engineering quality objectives, to develop a clear goal, and strictly implement in the construction process. That is mainly from the human factor and the material factor. Before the construction, not only the technical disclosure to the construction personnel, but also the quality disclosure should be carried out, so that the construction technical personnel can clearly understand the quality objectives of electrical engineering, and can clearly understand the follow-up work procedures and main matters. Strictly controlling the selection of building materials is also the premise of ensuring the quality of electronic engineering. In the process of using, we should pay attention to the inspection and reasonable arrangement of materials. [2]

The professional awareness and safety awareness of electrical engineering construction technicians should be strengthened. As an emerging pillar industry in China, the construction industry is also an accident prone industry. According to statistics, in 2016, there were 634 housing and municipal engineering production safety accidents and 735 deaths in China, all of which are lessons. Safety awareness is particularly important in electrical engineering construction, because the construction personnel are exposed to electricity, not sand and stone bricks. Therefore, attention should be paid to insulation protection during construction, and the operation process must meet the requirements.

The debugging work in electrical engineering construction should be done well, and the

debugging of electrical engineering is a very important step. The circuit debugging, metal lightning protection area debugging, operation equipment debugging and other links should be strictly controlled. In the actual operation, the debugging of electrical engineering is a relatively simple process. However, problems often arise because of its simplicity. In the actual operation, it is perfunctory with experience and does not pay attention to the debugging work.

#### **4. Quality Supervision Measures of Building Electrical Engineering**

Electrical engineer is a system engineering, its quality control should not only start from the perspective of construction management, but also from the perspective of supervision. First of all, the quality supervision should carry out self supervision. The construction party should be able to ensure its own construction quality. Second, the management of the third-party supervisors should be strengthened. The supervisors should start from the overall quality of the project and strictly do a good job in the evaluation and supervision of the electrical engineering quality. In the construction process, once problems are found, they should be corrected in time; the rectification opinions should be implemented, and the responsibility should be assigned to individuals. The following points should be noted. [3]

Before electrical engineering construction, it is necessary to strictly check the qualification of relevant units, the technical level of teams and electrical installation personnel, to check whether the professional qualification certificates of construction personnel of professional subcontractors are complete, and whether the construction personnel have received regular professional training and education. In short, we should not only check the technology of the construction personnel, but also check the awareness of the construction personnel. The construction electrical engineering materials, components and related facilities should also be strictly controlled. Fake and shoddy products are common in the electrical market. We must grasp the links of procurement, transportation, spot check and use before construction to ensure the quality of electrical engineering materials. Only the two aspects of human and material supervision are in place, it can better control the quality of electrical engineering.

In the process of electrical construction, we need a complete set of perfect construction quality management, quality control and quality acceptance system, a sound quality management organization and a perfect inspection, evaluation and assessment procedures. Electrical engineering is mostly concealed engineering. In the construction process, the quality of each process should be strictly controlled. The construction unit should first ensure that the self inspection is qualified, and the construction and supervision unit should carry out re inspection according to the standards, specifications and design requirements. If problems are found, they should be dealt with in time, and never leave the quality problems to the next process. Supervisors also need to regularly check the quality of some processes, as long as strict inspection and strict supervision can improve the quality awareness of the responsible units.

After the completion of the electrical engineering, the commissioning work must be carried out, and only after the commissioning is qualified can it enter the operation link. In the commissioning work, the commissioning scheme shall be prepared, and the commissioning organization and personnel shall be organized. The debugging work should be able to find out the hidden danger in time to prevent the occurrence of electrical accidents. In the actual construction, many units do not pay enough attention to the debugging and trial operation of electrical engineering, which requires supervisors to strengthen the management of debugging and trial operation of electrical engineering, so as to ensure the safety of electrical engineering system. [4] After the completion of the project, the quality supervision and inspection work still needs to be carried out. The supervisors should carry out the final quality inspection in strict accordance with the requirements and complete the

acceptance. This link has higher requirements on the professional quality of the supervisors. It is necessary to be fair and notarized, never tolerate the quality problems, and do a good job in the last control link of the electrical engineering quality.

## 5. Conclusion

The quality of electrical engineering is an important part of whether the quality of construction engineering is perfect or not. In the actual engineering, the quality of electrical engineering is uneven, and there are many factors that affect it. Starting from two aspects of construction management and quality supervision, we can improve the quality of electrical engineering, mainly emphasizing the human factor. As long as we grasp the construction personnel, we can improve the quality of electrical engineering. The quality of electrical engineering can be controlled.

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