Analysis on the Construction Strategy of Building Electrical Engineering with Intelligent Technology

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Abstract: Nowadays, the increasing development of China's society has promoted the rapid progress of the construction industry, further improved the level of construction technology, and made it present the characteristics of diversified development. At present, the internal connection between electrical engineering and intelligent technology is getting closer with the rising level of science and technology, and intelligent technology is used through the beginning and end of building electrical engineering. In order to further explore the construction strategy with intelligent technology of building electrical engineering, this paper analyzed the basic introduction, application characteristics, application status, technical key points and solutions strategies of building electrical engineering, attempting to improve the construction effect of building electrical engineering with intelligent technology.

1. Introduction
In the building electrical construction, electrical engineering is one of the important parts of the construction engineering, which is related to all aspects of the overall project, and the construction of building electrical engineering is mainly based on electrical equipment, device, etc. To some extent, the construction effect of building electrical engineering is directly related to the effect and progress of the overall construction project. Therefore, it is particularly important to strengthen the construction of building electrical engineering. Nowadays, the level of China's science and technology is growing day by day. In the construction of building electrical engineering, the rational application of intelligent technical means is conducive to improving the construction accuracy and level of electrical engineering. However, combined with the general laws of construction, the current intelligent technology of building electrical engineering still has some limitations in actual construction, which restricts the great development of China's building electrical engineering to a certain extent.

2. Basic introduction of building electrical engineering
At present, people's living standards are getting higher, and people have put forward new requirements and standards for buildings, especially the construction effects of building electrical engineering. With the rapid development of science and technology, the new technological means are also widely used in the construction of building electrical engineering. In order to ensure people's living safety, the units of building electrical engineering should pay attention to the application of intelligent technology and continuously optimize the level of intelligent technology, so as to improve the security and reliability of building electrical engineering [1]. In the construction of building electrical engineering, the main work is to install transformers, cable lines, lighting and lamps, lightning protection facilities, overhead lines, transformers and power units, etc. It can be seen that building electrical engineering and other
construction links have a very close relationship.

3. Example of building electrical engineering

This article mainly combined the actual examples of building electrical engineering to further analyze the characteristics of intelligent technology applications, application status, application key points and solution strategies. The project of building electrical engineering was a residential-office building, with a construction area of about 90,000 square meters, a height of 46.8 meters, 7 floors above ground and 2 floors underground. The 2 floors underground were parking lots, equipment rooms, shopping malls, etc., with a construction area of 25,000 square meters, while the floor 1-4 above ground were shopping malls, with a construction area of 62,000 square meters; The floor 5-7 were office buildings, with a construction area of 32,000 square meters. The electrical design of this project was mainly for power supply and emergency power system, power distribution system, lighting systems, lightning protection grounding system, automatic fire alarm-control linkage system, and communication system.

4. Application characteristics of intelligent technology in building electrical engineering

Through observation and research, it is found that the application of intelligent technology in building electrical engineering has a high value and significance. For example, the application of intelligent technology can promote the improvement of the construction effect of building electrical engineering and bring convenience to people in daily life. The application characteristics of the intelligent technology mainly include the following points.

4.1 Flexibility

As for the electrical controller, the inherent controller operation is very complicated and cumbersome, depending too much on the subjective consciousness of the operator. Therefore, human error is easy to occur in actual operation, and the application of intelligent technical means can be effective make up for this deficiency [2]. The utilization of intelligent technical means not only can improve the accuracy of construction in building electrical engineering, but also can reduce the workload of technical workers and improve their working efficiency, continuously enhancing the construction flexibility of electrical engineering. So, the task can be accomplished by means of intelligent technical means without the guidance of relevant technical workers.

4.2 Consistency

The application characteristics of consistency are mainly for the processing of different data. Through the use of intelligent technical means, unfamiliar data information is input to it, and the evaluation is carried out after the input is completed, so that it meets the automation standards of building electrical engineering. For different control subjects, the significance of their generation will also change. Although the intelligent technical means cannot make relevant control actions timely in a certain situation, it will produce the same effect. However, the operators are required to realize that if the controller unit is replaced, the expected effect will not be achieved. As a result, the principle of prudence must be upheld in the design work, and the processing of work details need to be optimized, to avoid mistakes in the work and minimize the errors.

4.3 Security

According to the research and investigation, it has been shown that the safety accidents caused by electrical systems in Chinese residence are increasing year by year, especially for the buildings with a long history, where the incidence of safety accidents induced by electrical systems is more frequent [3]. The root cause of the current problem is the low working efficiency and poor safety of the electrical system in the age-old buildings, and it is easy to increase the probability of safety accidents. Therefore, by the intelligent technical means, it can be found from the statistics that the occurrence probability of safety accidents has been significantly reduced. In the final analysis, because of the high sensitivity of intelligent technologies, once the residents operate improperly or the workers’ operation is not
standardized, the intelligent technology will act to detect it timely and control it to avoid safety risks, which makes the relevant controllers have reliability and security, so as to protect people's life, health and safety.

5. Application status of intelligent technology in the construction of building electrical engineering

5.1 The technical level of electrical construction is low
Because intelligent technology is still at the stage of improvement and development in building electrical construction, and intelligent technology also involves new technical means. As a result, the application in the actual building electrical construction has a small effect, and the working efficiency of industrialized production is low, while the regional development is not balanced. The technical workers have not fully grasped the methods of intelligent technology and design management, which also leads to the low level of electrical construction technology.

5.2 The electrical construction is not very standardized
Nowadays, intelligent buildings are gradually emerging in our country. Most people have a high degree of recognition for intelligent buildings, promoting the widespread application of intelligent building design, which has strengthened the electrical construction technology of intelligent buildings to some extent [4]. However, due to the rapid development of intelligent technology, in the application of relevant systems and equipment, no clear specifications and standard instructions have been made on the related technology, which makes it prone to problems.

5.3 The security of relevant controllers is improved
With the extensive application of intelligent technology in the construction of building electrical engineering, it can obvious that the occurrence probability of safety accidents is declining. The root cause is the high sensitivity of intelligent technology, because of which, if the residents or the relevant workers operate improperly and other problems, the relevant device with intelligent technology will timely detect and control it, which can effectively avoid the occurrence of safety accidents, further improve the security and stability of the controller, and effectively guarantee the safety of people's lives and property.

6. Analysis of key points of intelligent technology in electrical installation engineering

6.1 Technical key points of wire laying
Building construction workers need to skillfully understand and master the piping in construction drawing, should meet the design requirements in accordance with the construction drawings of electrical engineering, and cannot arbitrarily change them. They are supposed to make marks on the ends and branches of the cables, to ensure the cables arranged in order. Fixed points should be set at both ends and the turnings, and the spacing between the fixed points should be controlled at about 5-10 meters. In the vertical cable laying, it should consider the cable material to reasonably set fixed points [5]. It is worth noting that spare lines should be reserved in the cable laying, and it should pay attention to the anti-corrosion of pipelines, ensure the connection of pipelines clear at a glance, do well to protect pipelines in the actual construction process, and keep the pipelines unobstructed.

6.2 Technical key points of installing remote processors
In order to maintain the unity of buildings, automatic control systems and each RPU communication facilities, it is necessary to use relative lines and adopt different RPU, so as to control RPU in the same system. RPU should be reasonably installed around or in the machine room, and in the application of control system of the air-conditioning unit, the overall level of remote processing and installation technology is improved by controlling the rest of output and input ports, lightings connected to the seat,
6.3 Technical key points of BAS line installation
In the process of line laying, the BAS system occupies a dominant position, and workers need to have a better understanding of the special pipelines of each part of the lines, such as the switch lines where the water level floats are located, the lines which the flowmeters are located and so on. Because the lines usually require the professional wires provided by manufacturers, it is necessary to combine the grounding parts of gateways, computers and other electronic equipment with the other weak points engineering, so that they can be grounded to the main line separately.

6.4 Technical means of lightning protection grounding
In the process of intelligent building design, it is necessary to be in line with the design drawings of the electrical installation, based on the actual situation of the construction, strengthen the focus on the welding of the baseplate, and mark the two main bars, to facilitate the inspection of relevant workers. Vigilance is needed when laying the ground down lead, and the ground down lead connected manually should be kept straight, without dead angle expected. The size of the flat steel interface is controlled to not more than 25 mm × 4 mm, and the diameter of the round steel must not be less than 12 mm. The test points are required to properly set at the ground down lead and at the height of 1.5-1.8 m above the ground, and the diameter of the bolt on the disconnecting clamp needs to be controlled within 10 mm. The metal protective tube for the ground down lead must be connected to the ground down lead to achieve electrical connectivity.

7. Effective strategies of intelligent technology in building electrical construction

7.1 Enhance the technical level of electrical construction
In the construction of building electrical engineering, new technologies, new concepts and new methods should be reasonably applied, and construction coordination work should be done well to improve the effects of strong and weak currents professionally flowing into households and the reserved holes for pipelines. Aiming at the embedded elevators, suspenders, related bolts, relevant bolts, iron poles and basic steel of the accessory cabinet and so on, it should promote the improvement of workers' professional competence and professional level, and pays attention to the supervision of quality. Building electrical construction organization can promote the improvement of workers’ comprehensive ability by professional skills training and lectures, and help workers master certain intelligent technical means, to accelerate the improvement of electrical construction technology and ensure the construction effect of building electrical engineering.

7.2 Do well staggered construction
In view of the construction problem of the joint cooperation in all work, it should be analyzed in advance to optimize the construction process, so as to improve the cooperation and coordination of all work. For example, during the construction of the electromagnetic shielding project, all aspects of the construction cannot be separated from the cooperation and coordination of various professions. If each link only focuses on the progress of their own engineering construction, it is bound to cause disputes and other problems. This requires the supervisors to fully control the progress of the construction, coordinate all professions well in the actual construction, and draw out an effective construction plan according to the actual construction and construction technology characteristics, to ensure the orderly construction of the building electrical engineering.

7.3 Realize sharing through sensor technology
In the construction of modern building electrical engineering, workers should use sensor technology reasonably to realize sharing of resource information. For example, based on traditional technology, the building electrical engineering department collects and summarizes the construction situation of the
project, and uses computer technology to combine it with professional theoretical knowledge such as electrical equipment, electromagnetic fields and circuits, and carry out comprehensive analysis and research on the collected data and information. At the same time, relevant management workers can compare and study the results obtained with the original data and information, and automatically control the results appearing in actual operation to ensure the overall quality of the construction of building electrical engineering.

7.4 Reasonably optimize the building electrical design
In the actual construction of building electrical engineering, workers need to apply the sub-construction method to assess the electrical load status, formulate the corresponding intelligent optimization methods for it, sort out the construction ideas of intelligent reduction of emission, and improve the overall construction efficiency. For different electrical engineering and load characteristics, the application methods and value effects of electrical intelligent technology should be analyzed, to select the best design method and use the most advanced technical means to create more social and economic benefits for building electrical engineering. In addition, managers should pay attention to the management aspects of electrical design, ensure that the design schemes meet the standards required by relevant departments, properly select transformer facilities, and make sure that they use the changes in electrical load as soon as possible, to reduce unnecessary power loss. It should be noted that, because of the high sensitivity of electric motors, transformers and other facilities in the power system, they will be affected by the loss of current, which results in the increase of circuit operation power loss. For this problem, in the design process of the power distribution system, electric intelligent technology should be used to play the role of intelligent technology.

In the optimization of electrical automation equipment, intelligent technology plays a considerable role, such as in the application of genetic algorithm and expert system of intelligent technology. The genetic algorithm, as an applied law to simulate biogenetics, can optimize the design and ensure the optimization of its gene arrangement through progressive search. The expert system needs to base on expert experience to solve the problems existing in the actual construction of building electrical engineering with the help of the inherent experience, in the form of machine learning samples. Workers need to ensure that the genetic algorithm and expert system are used reasonably in the construction of electrical engineering, and they can further optimize the design of electrical equipment to make sure that the building electrical engineering meets the relevant requirements and standards.

7.5 Main points for attention
Although intelligent technology has significant advantages in the construction of building electrical engineering, there are still many problems to be solved in actual construction. Workers need to understand their precautions and main points to effectively avoid the occurrence of adverse results due to excessive pursuit of the convenience of intelligent machine. At the economic level, since the current intelligent technology applied in the construction of building electrical engineering is relatively advanced, its technology should be controlled in terms of development costs, to effectively improve the overall efficiency of building electrical engineering and control costs reasonably. At the design level, workers must base on the actual situation in the design, do well in discovering the deficiencies and defects, and do not pursue the construction goals inconsistent with the actual situation, so as to really exert the advantages of intelligent technology, reduce the construction difficulty of electrical engineering, and control the operating cost.

8. Conclusions
In summary, by analyzing and exploring the application of intelligent technology in the construction of building electrical engineering, it could be found that intelligent technology occupies a core position in
the construction of building electrical engineering in the new era of rapid development of information. The rational use of intelligent technical means is conducive to improving the accuracy of electrical engineering operation. In addition, it can further enhance the overall effect of electrical engineering and strengthen the security and reliability of electrical control. However, analysis and research has confirmed that the application of intelligent technology in the construction of building electrical engineering also has some limitations, which has an adverse effect on the effect of electrical engineering to some extent. Therefore, we should pay attention to the application of intelligent technology, learn the advanced technology concepts, and optimize the construction process of building electrical engineering. Only in this way can we organically combine intelligent technology with electrical engineering construction, promote the great development of building electrical engineering, build a harmonious and comfortable living environment for people, and realize the innovation of construction technology of building electrical engineering.

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