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Application technology of intelligent weak current engineering system in intelligent building

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Abstract. The popularization of electronic equipment makes the weak current system more and more important. This paper mainly describes the development of intelligent weak current engineering system in China and the application technology of intelligent weak current engineering system in the field of intelligent building in today's advanced science and technology and people's increasingly high demand for housing. On this basis, the development direction of the intelligent weak current engineering system in China is expounded, and a concrete example is given to illustrate how the intelligent weak current engineering system can realize the comfort and safety of people's houses in real life. It is believed that with the economic development of China and the improvement of intelligent weak current engineering system technology, people's working environment in intelligent buildings will become better and more convenient.

Keywords: Intelligent Weak Current Engineering System, Intelligent Building, Weak Current System, Summary Type.

1. Introduction

With the rapid development of modern science and technology, people enjoy many conveniences brought by scientific and technological achievements. The popularization of electronic equipment makes the weak current system more and more important. Among them, the intelligent weak current engineering system is more important, because the intelligent weak current engineering system is closely related to the construction industry. In the 1970s, the progress in the field of computer automation led to the intelligent weak current engineering system making the construction industry more intelligent. After that, most developed countries continued to do research in the field of building intelligence and obtained great achievements. About 60% of Japanese buildings are intelligent buildings based on intelligent weak current engineering system. There are tens of thousands of intelligent buildings in the United States, and in 1984, Hartford, the United States, built the world's first intelligent building, called city place building.

Because the intelligent weak current engineering system in China started later than other countries, the intelligent building field also started later than other countries. It was not until the reform and opening up that China's intelligent buildings developed rapidly. Especially in coastal areas and Beijing, after the rise of these areas, inland cities gradually began to use intelligent buildings. The definition of intelligent building is not uniform in the world. The definition given by the American Intelligent Building Research Association is that people can enjoy efficient, comfortable and safe environment and

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buildings in intelligent buildings. It also optimizes the structure, system, service and management of buildings, and optimizes the connection of these four aspects [1]. To realize the basic technology of these intelligent buildings, it is necessary to use the intelligent weak current engineering system. Especially in China where the electronic technology is constantly improving, the intelligent weak current engineering system can build better and more advanced intelligent buildings, and the intelligent weak current engineering system can also enable construction enterprises to ensure the quality of the project.

With the improvement of materials science, communication technology and other fields, the intelligent weak current engineering system can be improved more comprehensively, and the services of the intelligent building industry will become more efficient, more comfortable and more intelligent. The domestic research on intelligent buildings began in 1986. At present, China's research on intelligent buildings is in the first stage to the second stage, while western countries are in the more advanced third stage and occupy a monopoly position.

At present, China is still at a disadvantage, so China needs to develop its own intelligent building system. If China does not develop its own technology, the monopoly position of Nordic countries will cause great restrictions on the design and development of intelligent buildings in China. If the cost of enterprises increases and the number of consumers decreases, the construction of intelligent buildings in China will be reduced, which is not a good thing for China. Therefore, the government can establish relevant policies to help enterprises develop relevant technologies [2].

This paper mainly analyzes the working principle and technical application of the intelligent weak current engineering system, discusses the importance of introducing the intelligent weak current engineering system in the intelligent building industry, and the specific practice process of the intelligent weak current engineering system in the intelligent building field, with a view to optimizing and improving the intelligent weak current engineering system.

2. Application analysis of intelligent weak current engineering system in intelligent building

2.1. Weak current concept

Weak electricity is a classification of electricity relative to strong electricity. The criterion for distinguishing the two is the energy transmitted through the power. For general buildings or buildings, the AC power of 220V 50Hz and above is strong, and the AC power below is weak. Weak current can also convert electric energy into other energy as strong current, making it an indispensable part of people's life, such as lighting equipment, air conditioning and other weak current that people often use [3].

2.2. Intelligent weak current engineering system

Intelligent weak current engineering system is the combination of intelligent technology and weak current technology, which is usually used in intelligent buildings. It is mainly divided into two categories. The first category refers to computers, televisions, telephones and other information sources that can carry data, images, voice and other information. The second type is low-voltage power, such as 24V DC or 36V AC, which controls the standby power supply of emergency lighting. When talking about intelligent vulnerability systems, we mainly refer to the first category. Generally speaking, the use level of intelligent weak current engineering system in intelligent buildings determines the intelligent level of intelligent buildings [4].

2.3. Application and principle of intelligent weak current engineering system

The intelligent weak current engineering system has many functions, mainly reflected in the following aspects (Figure 1): (1) the function of the computer network system is to make full use of unshielded twisted pair. It can quickly and effectively transfer various information and realize the automatic operation of system functions. (2) The function of the video monitoring system is to monitor specific areas. In specific operation, the monitoring camera can be installed at a corner of the building to play

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the monitoring function. (3) The function of the parking lot charge management system is to manage the vehicles in the parking lot. The application of computer technology to vehicle toll management can realize the automation of toll collection. (4) The function of the fire alarm system can be brought into play. The basic function is the video monitoring system. If a fire occurs in the application area of the system, the automatic fire alarm system will automatically start, the alarm equipment will operate, and the alarm sound will be issued to prompt the personnel in the area to leave the site quickly. (5) The access control system is used to monitor the access of vehicles. Generally, the system needs to be installed in residential areas. If the site restricts access to vehicles, it is also necessary to install a system to implement management through monitoring. (6) Call system, whose function is to complete the call. During the operation of the system, a special carrier can be used to realize the call function through a signal in a specific frequency range. (7) The cable TV system plays a role in reasonably distributing cable TV signals to meet the needs of TV users. During the operation of the system, the distributor is used to distribute cable TV signals and transmit them to cable TV users. In order to ensure the cable TV system to play a better role, we must fully consider the actual situation of the building and set the line reasonably [5].

Figure 1. Functions of weak current engineering system in intelligent buildings.

2.4. Implementation standards of domestic intelligent buildings

The standard given by China is to provide a safe, efficient, convenient, energy-saving, environment-friendly and healthy building environment for people by taking buildings as the platform and integrating information facilities system, information application system, building equipment management system, public safety system, etc., and integrating structure, system, service, management and its optimized combination.

Nowadays, the design standard for intelligent buildings is a national standard with the number of GB50314-2015, which has been implemented since November 1, 2015. Among them, clauses 4.6.6 and 4.7.6 are mandatory provisions, which shall be strictly implemented [6]. The original design standard for intelligent buildings (GB / t50314-2006) shall be abolished at the same time.

2.5. Application of intelligent weak current engineering system in an intelligent community

Taking the weak current engineering technology practice of intelligent residential building in residential district as an example, this paper makes an exploration. It mainly includes communication network automation system, office automation system, fire alarm system, security management system and building equipment monitoring system. The design principles of intelligent housing are: feasibility and adaptability, practicality and economy, progressiveness and maturity, openness and standardization, reliability and stability, security and confidentiality, scalability and ease of use, maintainability. As the central system of community management, building automation system is the bridge between the community and the outside world (Figure 2). It requires a proxy server to connect to the Internet and perform internal domain name resolution. The automation system mainly includes fire alarm system, security management system and building equipment monitoring system [7].

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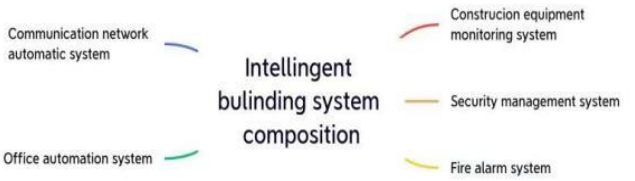

Figure 2. Main system composition of intelligent building.

2.6. Suggestions on the development of intelligent weak current engineering system

The application of intelligent weak current engineering system is more and more extensive. In order to better play this technical function and meet the needs of the network industry, electronic industry, communication industry and other industries, it is necessary to improve the technical level and be more rigorous in design. The electronic control technology in China starts late, develops slowly, and has obvious shortcomings in application. Generally speaking, the engineering design should be done well, and then the construction should be started according to the design drawings. However, the design time is short and the process is complex, so the accuracy of the design cannot be guaranteed. There is no unified planning in the bidding document of the intelligent weakness project, resulting in great changes in the products. At this time, we need to constantly change the design, resulting in a waste of resources [8].

The design stage of the intelligent weak current engineering system fundamentally determines the operation effect of the whole intelligent weak current system, so the technical specifications in the design stage must be very clear. The whole design scheme needs to be based on the preliminary investigation, comply with the relevant national policies, and pursue the overall economy and practicality to guide the stable operation of the whole planning system. In addition, the designed intelligent weak current system needs to be regularly debugged and tested to avoid unnecessary safety hazards and affect people's life and property safety [9].

3. Conclusion

With the continuous development of China's economy, in the large-scale infrastructure construction of major cities, intelligent buildings are an indispensable construction trend. Now the newly built government buildings, commercial buildings, office buildings, residential buildings and urban complexes. Comprehensive projects and other buildings are developing in the direction of intelligence. The intelligent performance of intelligent buildings depends on its intelligent weak current engineering system [10]. This paper first discusses the development history of intelligent buildings and the domestic research status, through the functional application of intelligent buildings and intelligent weak current engineering systems, and the explanation of examples. It is concluded that the development of intelligent building industry in China will be better and better. The cost of designing intelligent weak current engineering system will be reduced, the degree of perfection will be high, and it will be more popular. And because of the support of the state, the career prospects of this industry will also be very promising. At the same time, with the continuous progress of science and technology, the weak current intelligent engineering system of intelligent buildings will be more perfect. With intelligence, people will also get a more convenient and comfortable working and living environment.

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