The Study on Design Method of Assembly Structure Based on Computer BIM Technology

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Abstract. We all know that our country is a developing country, many domestic industries are in the stage of rapid development, including the construction industry of our country, the current construction industry of our country is in the stage of rapid development. China's construction industry ushered in a new spring of development. At present, the development of the construction industry has also introduced advanced technology, BIM technology is widely used in the construction industry of our country now, this new technology has accelerated the development of the construction industry, it can ensure the reliability of structural design. In this article, we elaborate the characteristics and principles of this technology. For your reference.

Keywords: Construction, Industry, BIM technology, Structural Design, Reliability

1. Basic overview of BIM technology and assembly structure design

The construction industry of our country occupies an important position in the national economy. The construction industry can promote the development of our country's economy and promote the better development of society. In architectural design, we know that there is a structure called assembly structure. There is assembly structure design in many architectural designs. In order to ensure the scientific and reasonable design of prefabricated structure to the greatest extent, the application of BIM technology should be strengthened. Only in this way can we meet people's demand for architecture, improve the quality of architecture and promote the sustainable development of China's construction industry. Therefore, this paper will be aimed at the BIM technology assembly structure design content.

1.1. BIM Basic technical overview

Let's first learn about BIM technology, also known as building information models, which is needed in any architectural design. BIM technology can not be separated from advanced computer technology. In architectural design, we can use advanced technology to in architectural design. In architectural model, staff can analyze and understand the actual situation. At the same time, we can use BIM technology to build information database. The information database contains many contents, such as supervision information content, construction engineering content and so on, so that everyone can use this database, which lays a good foundation for the smooth development of construction work.
Compared with the traditional CAD drawing, BIM technology can not only realize the simple operation of the point line surface, but also realize the utilization of different data information, construct the corresponding building model, and provide more convenience for the staff. By realizing the visualization of the whole construction project, the building quality and construction efficiency are greatly improved.

1.2. Basic outline of assembly structure design

So what is assembly structure design? In prefabricated buildings, this kind of structure is very common. Before each building is constructed, we first transport the building materials to the factory, process the building materials, process the size and type we want, and after processing, We transport the components to the construction site, and people use the corresponding machinery to hoist and assemble. In addition, we also need to strengthen the application of reinforced concrete to ensure the quality of prefabricated buildings. In the assembly structure, integration is an important part, information is the main content of integration. BIM technology is of great significance to assembly structure design. BIM technology should be applied scientifically and reasonably in practical design. Today BIM technology is widely used in various industries, we can know the proportion of BIM used in various countries through the relevant data, such as Table 1:

| 1. Proportion of countries and regions with technology |
|------------------------------------------------------|
| 2. America                                           | 3. 55% |
| 4. Britain                                           | 5. 28% |
| 6. Shanghai, China                                   | 7. 32% |
| 8. South China                                       | 9. 28% |

BIM technology is now widely used in various industries and fields in China. Through the survey of relevant data, we can get the following data, as shown in Figure 1:

Figure 1. China market BIM capacity measurement 2020.

2. BIM technical characteristics

2.1. Visualization features

BIM has its own characteristics, and this technology has brought great convenience to the construction industry of our country, promoting the development of the construction industry in our country. Visualization is one of the. It can greatly reduce labor force, save a lot of manpower and material resources, BIM technology can reduce staff workload, ensure the scientific and reasonable design drawings, improve the quality of construction work and lay a good foundation for the subsequent
construction work.

2.2. Coordination characteristics
Coordination is also a characteristic of BIM technology. We all know that in every architectural design and construction, the construction workers work according to the drawings, so the quality of the drawings directly affects the progress of the construction. We must strictly require the construction drawings, once the construction drawings have problems, it will greatly affect the construction progress and construction quality. The relevant construction departments should analyze and study the construction design drawings in time, find out the problems existing in the construction drawings in time, and give effective solutions to prevent the construction from being affected by the unreasonable construction design drawings. During this period, strengthening the application of BIM technology can lay a good foundation for the perfection of construction drawings is a key point of effective coordination between construction departments and customers.

3. Design measures for assembly structure based on BIM technology

3.1. Enhancing the application of BIM data link technology
BIM data chain technology is essential in the process of building assembly construction design. In the whole process of design and construction, there are applications of this technology. We can use BIM technology to decompose and refine the whole construction process. Determine the size and size of the component, which is more conducive to the progress of the work. BIM technology can carry out assembly structure design on the basis of three-dimensional design concept and four-dimensional design concept. At the same time, we need to use different data information when designing. BIM the use of data chain technology, it can prevent information errors and so on, so as to alleviate the problem of data information mismatch to the greatest extent. Through the development of management work, we can find out the unreasonable place in the supervision work in time, and put forward the improvement measures in time to lay the foundation for the smooth development of the subsequent construction work.

3.2. Strengthening deep design
Effective combination of assembly structure design and BIM technology can be more conducive to the progress of work. In the process of our work, we can carry out the following aspects: first, strengthen the design work, designers should focus on the design part. BIM technology should give full play to its own advantages and combine and splice different designs to form an organic whole. In the development of the analysis work, we should strictly abide by the relevant national regulations and standards, so as to avoid the problem of unqualified quality and improve the quality of construction. The second aspect is: focus on the design of drawings, designers should do a good job in time to deepen the three-dimensional drawings. Some data information into the form of drawings, easy to watch. We should strengthen the application of BIM technology and obtain accurate data information, which will help everyone to coordinate the work, reduce the workload of the staff, and avoid the problem of deviation between the design scheme and the construction scheme as far as possible [1].

3.3. Strengthening of factory production of prefabricated components
In the process of structural design and construction, production and assembly work need to be separated. In the process of design, we will use drawings to display the information of the structure, but the drawings also have some limitations [2]. The structure on the drawing is difficult to fully show the actual three-dimensional characteristics. Therefore, some construction still needs to be imagined in our minds. If the structure of the construction itself is more complex, it is easy to make mistakes, so we should strengthen the application of BIM technology in the factory production of prefabricated components. Visualize graphics and information. The following problems should be paid attention to in the process of using BIM technology: in production, we should construct BIM model data, realize
the calculation of engineering quantity through the application of BIM model, and avoid cost waste. BIM technology can display some complex drawings [3].

3.4. Strengthening transport management of prefabricated components

Assembly structure design also includes component transportation management. Transportation management can effectively improve the quality of workpieces. In the transportation management of components, we can carry out the following aspects: first, in order to make the workpieces meet the requirements of use, We must manage the transportation of components in time. This can effectively improve the service life of prefabricated components. This process can not only strengthen the application of BIM technology, but also combine BIM technology with RFID technology to realize the information management of prefabricated components. In order to ensure that each component can have independent labels and codes, it is beneficial to the use of the workpiece. Transportation lines should be reasonably planned to avoid bumps in transportation and so on. At the same time, during the transportation period, the shortest transportation line should be selected to do the corresponding safety protection work to avoid the quality problems of prefabricated components in transportation, and the impact on the subsequent use and construction quality [4].

4. Conclusion

Through the elaboration of this article, we also understand the role of BIM technology in assembly structure design. This technology can effectively improve the working efficiency of the construction industry and promote the development of the construction industry [5]. At the same time BIM the use of technology can make the building more reasonable and lay the foundation for the better development of China's construction industry. The combination of computer technology and China's construction industry has greatly promoted the development of China's construction industry, provided a new direction for the future development of China's construction industry, but also illuminated the road of the development of China's construction industry [6].

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