

Visual Management of the Whole Construction Process of a New Dormitory Building Project

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Abstract

With the rapid development of information technology and the continuous improvement of scientific and technological level, engineering construction management has gradually turned to digital, intelligent, scientific and technological, and modern. This paper aims to discuss the importance, implementation methods and advantages of visual management of the whole process of engineering construction. Through the visual management analysis and comparative study of the whole construction process of a new dormitory project, a set of visual management scheme suitable for dormitory construction is proposed, which can provide reference for similar projects.

Keywords

Engineering Construction; Construction Management; Visualization; The Whole Process.

1. Introduction

In recent years, with the expansion of college enrollment and the acceleration of urbanization, the demand for the construction of student dormitories is increasing. Dormitory engineering has the characteristics of short construction period, high quality requirements and many participating units, which makes the construction management particularly complicated. Traditional construction management methods are often difficult to effectively deal with these challenges, but the emergence of visual management technology has brought new opportunities for construction management.

2. The Connotation of Engineering Visual Management

The visual management of the whole process of engineering construction is a method that uses information technology to digitize and visualize all links and data in the process of engineering construction, store them in a certain form, and manage them by using these data to form corresponding visual forms. It is conducive to better project management and decision-making. Specifically, it can present all links and data in the construction process in an intuitive and vivid way by establishing three-dimensional models, using virtual reality technology, real-time monitoring of the construction site, making videos of the whole construction process, etc., so as to help managers better understand the construction situation, timely discover and solve problems, and improve construction efficiency and quality. Reduce risk and cost.

3. Advantages of Engineering Visual Management

3.1 Improve Work Efficiency

Through visualization technology, managers can quickly obtain the status information of projects or equipment, reduce the time and error of information transmission, and make quick decisions. In addition, it can better supervise the progress of engineering projects, play a good role in guiding

project projects, and let all project participants clearly know what they should do at each stage, which promotes the overall planning and development of the project and helps to improve work efficiency.

3.2 Improve Risk Management Ability

Visualization technology can comprehensively and systematically analyze and record project risks, timely discover and solve potential problems, and reduce the probability and impact of risks. Improve the early warning ability of the project, and take timely measures to the expected risks. When the whole project enters the stage of information and intelligent management, the project risks can be predicted and solved in time, and the risk management ability is greatly improved.

3.3 Enhance Team Collaboration

Visualization technology visually displays information such as nodes, time nodes and related resources in the construction process, making the communication between project managers, engineers and construction personnel more clear and reducing misunderstandings and conflicts. At the same time, it can also make information sharing and communication more convenient and efficient among all relevant parties, avoid misunderstandings and leakage in the process of information transmission, effectively improve the accuracy and efficiency of communication, and enhance the ability of team cooperation.

3.4 Optimize Resource Allocation

Through visualization technology, the construction process and resource usage can be visually displayed. The system can monitor project cost and resource consumption in real time, and give timely warning when abnormal situations occur, helping managers to take timely measures to avoid resource waste and loss. Managers can make more reasonable and scientific decisions, optimize resource allocation, and improve project benefits. Avoid the waste and shortage of resources.

3.5 Promote Project Collaborative Efficiency

In the construction of engineering projects, it often involves the collaborative work of multiple departments and units. The visualization system can realize real-time communication and collaborative work of all parties to the project through Internet technology, so that the management is more efficient, abnormal situations and abnormal data are easier to find, and the problem solving becomes faster and more effective. At the same time, the collaborative efficiency of engineering projects is improved.

3.6 Promote Scientific Decision-Making

Visualization technology can provide decision-makers with more accurate and comprehensive data and information support, with sufficient data, analysis and expert opinions, to help engineering construction personnel more accurately predict and evaluate the possible results of engineering construction, thereby reducing the risk of decision-making errors and helping decision-makers to make more reasonable and scientific decisions.

To sum up, visualization management of the whole process of engineering construction has the advantages of improving work efficiency, enhancing risk management ability, enhancing team collaboration, optimizing resource allocation, promoting project collaborative efficiency, and promoting scientific decision-making. It can realize the monitoring and management of the whole process, which helps to improve the quality, efficiency, safety and coordination ability of the project, and provides a strong guarantee for the smooth implementation of the project. At the same time, it can also integrate and integrate information in different fields, provide managers with more comprehensive and accurate data support, and help managers make more scientific and reasonable decisions.

4. The Application of Engineering Visual Management in the New Dormitory Project

4.1 Introduction of A New Dormitory Project

A dormitory project is usually a residential facility for students. The main purpose is to provide students with safe, comfortable and convenient accommodation to meet their needs in study and life. The dormitory project is a comprehensive project, which needs to consider the needs of students, the actual situation of the school and the budget and other factors to ensure the successful implementation and operation of the project. A new dormitory is expected to cost 91,555,400 yuan, covers an area of about 15,059.38m², the total construction area of about 34,606.4m², of which the ground construction area of about 29,819.23m², the underground construction area of about 47,87017 m², the main construction content includes 5 student dormitories and a dining hall, set up 531 dormitories. There are 2,103 new dormitory beds and 6,648.85 square meters of student dining hall.

4.2 Visual Management of a Newly Built Dormitory

Through exploration and analysis, the visual management of a newly built dormitory adopts the production of video of the whole process of engineering construction to carry out visual management of engineering construction. Specific plans are as follows:

- (1) Project start-up and team building: First of all, a visual management team was established, including the project leader, schedule management team, safety management team, etc. Clarify the responsibilities and work content of each member to ensure the smooth progress of the project.
- (2) Planning: After the project was started, a visual management plan was prepared, including time plan, resource plan, quality plan, etc. The time plan is detailed to each day, including the start and end times of each construction phase, as well as monitoring requirements for key nodes. The resource plan specifies the human, material, and financial resources required and how they will be deployed. The quality plan defines the quality standards, testing methods and quality control measures.
- (3) Shooting and production: shoot relevant photos and videos, collect relevant data and information of the project. Organize and process the shooting content. According to the characteristics and needs of the project, visual video production of the whole process of engineering construction was carried out. Make sure the video is clear and complete in detail.
- (4) Video display and analysis: Clip and analyze the video of the whole process of building construction by using editing tools. Through real footage, animation demonstration, virtual reality and other technical means, show the scene of the building at different times and angles. The feasibility and content of related construction are analyzed to assist project decision-making and risk assessment.
- (5) Follow-up and adjustment: Using visual video of the whole process of engineering construction to monitor the progress and quality of the project. Compare the differences of projects in different periods and make timely adjustments. Through the form of video demonstration, to communicate the progress of the project to the relevant personnel and teams, to ensure that the project management is transparent and efficient.
- (6) Safety management and response: In the process of shooting, if potential risks or problems are found, it is necessary to immediately stop shooting, analyze and evaluate on the premise of ensuring their own safety, and formulate corresponding countermeasures. At the same time, it is also necessary to communicate with relevant staff to find and deal with possible problems in a timely manner.
- (7) Evaluation and summary of results: After the completion of the project, the effects of visual management of construction engineering were evaluated and summarized, as well as the problems and improvement measures in the management process were summarized.

4.3 Evaluation of Achievements and Advantages

Through visual management of a new dormitory building project in a university, various data and information of the project can be visually displayed, including project progress, resource consumption,

quality and safety. Through visual management, both parties can have a more comprehensive understanding of the actual situation of the project, timely find and solve the problems in construction, and ensure the smooth progress of the project. The construction progress has also been effectively controlled, the quality qualification rate has been significantly improved, and the safety accident rate has been significantly reduced, providing strong support for the sustainable development of the enterprise. At the same time, it has significant advantages in improving efficiency, reducing risk, optimizing resource allocation and improving decision quality. This management mode helps to improve the overall performance and competitiveness of the project, and provides a strong guarantee for the successful implementation of the project. Compared with traditional construction management methods, visual management has obvious advantages in improving construction efficiency, ensuring project quality and safety.

5. Conclusion

Visual management of engineering construction is an advanced management method worth popularizing and applying, which is of great significance for improving the efficiency and quality of engineering projects. This paper studies the importance and implementation method of visual management of the whole process of construction of new dormitory building. The case analysis shows that visual management of engineering construction is an advanced management method. By using information technology, various data and information of engineering projects are presented in an intuitive way, which helps managers to understand the actual situation of engineering projects more comprehensively and accurately, and improves management efficiency and scientific decision-making. At the same time, visual management can also promote collaboration between parties, realize information sharing and real-time monitoring, strengthen risk management and control, reduce resource waste and loss, and enhance the market competitiveness and brand image of enterprises. Visual management has significant advantages in improving construction efficiency, ensuring project quality and safety. In the future, with the continuous development of information technology, visual management will play a more important role in the field of engineering construction. It is suggested that construction units strengthen information construction, promote visual management concept and technology application, and further improve the digital and intelligent level of engineering construction management.

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Application research of "BIM+3D printing technology".

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