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Application Research of BIM + VR Technology in Real Green Building Engineering

Yunlei Chen

Guangdong University of Science & Technology, Dongguan City Guangdong Province,523000 China

Abstract: After the application of BIM+VR technology in green building engineering, the previous single design scheme is broken, so that users can see the results of green building construction in advance. Designers introduce product performance and green design content through technology, so as to satisfy user experience.In the construction of BIM technology +VR technology, construction personnel can also enter the scenario analysis, laying a solid foundation for the smooth progress of the subsequent green construction.

Keywords: BIM + VR technology; Green construction project; Application

Introduction

With the development of science and technology, BIM technology and VR technology have begun in the field of architecture. At present, BIM and VR technology are widely used in various industries and further enhance the intelligence level of construction projects.At the present stage, construction engineering is developing towards green engineering. In the use of BIM+VR technology, it can not only ensure the construction safety of patients, but also rationally carry out engineering planning, avoid the abuse of materials in construction, ensure the rationality of construction engineering, comprehensively improve the quality of construction, and realize the sustainable development of construction engineering.Construction companies should actively use BIM + VR technology, depth development, master the technical point of technology, thus promoting the rapid development of China's construction industry.

1. BIM + VR technology

BIM technology uses digital model to fuse various information and comprehensively process data. In green building engineering, BIM technology can be used rationally to provide help for the design and construction of building projects, so as to ensure the effect of drawing design and effectively improve the quality of construction.Through the research on BIM technology, the building thinking can be changed, the construction process can be improved and optimized, the problems in construction can be grasped in time, and effective countermeasures can be taken.In addition, the rational use of BIM technology can also model the building, so as to test the construction quality and clarify the construction effect of the project.VR technology in architectural engineering is conducive to play the effect of visual media, clear display of engineering project works, help owners master the design scheme, improve the overall level of architectural engineering.

2. Status quo of green building engineering

The concept of green building was put forward in 1960. With the economic development after World War II, various countries around the world paid attention to the problem of building energy consumption and promoted the development of green building. Paola Soleri, an American architect, proposed the concept of "arcology".In 1976, the United Nations convened the National Conference on ecological and human communities, which closely integrated the ecological environment and human habitation.In 1980, with the development of the concept of sustainable development, various countries studied the development path of green building."BREEAM" of the United Kingdom, "LEED" of the United States and "CASBEE" of Japan have laid a solid foundation for promoting the development of green building.Green buildings originated in China in the 21st century, China has raised the "China Ecological Residential Technical Assessment System" for the construction standards of the world, which is also an early development of China's green construction project.With the success of the Olympics in China, "Green Building Evaluation Standards" and "Green Architectural Evaluation Standard (Second)", which stipulates that the development of China's architectural development is proposed."Green Building Evaluation Standard" as the guiding document of building construction in China.

3. Application of BIM+VR technology in practical green building engineering

3.1 Application in architectural space planning

Space design planning as a step to determine the construction site of building products, in the design process should be on the floor area and terrain, trend, slope rate and other factors to analyze, determine the shape and direction of building products.During the construction process, it is of great significance for planning of product space for the complex problems of terrain.During the planning

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process, through the BIM technology to expand space planning, save a large number of planning times, quickly analyze the basic data of the terrain and slope to the building design management area in the virtual platform, lay a solid base for the later architectural design work.Based on the BIM technology, VR technology is conducive to combining BIM technology with VR devices.After the BIM model and the VR device are combined, the space is presented in a three-dimensional manner. The owner can directly see the overall design effect, including architectural form, ribbon, space division and building distance.It can even analyze the situation of each component to achieve the goal of high-quality space planning. Through the combination of VR technology and BIM technology, it can also improve the advantages of BIM technology and VR technology in the field of architecture.

3.2 Application in architectural design phase

BIM technology makes various professional collaboration, making the content of each professional section jointly, enhance the quality and speed of design work.BIM technology integrates project information through parameter model, achieves sharing and transmission goals in the stage of project planning, operation and maintenance, and enables engineers and technicians to have a comprehensive understanding of building information.After the application of BIM technology and VR technology, engineering and technical personnel have a comprehensive understanding of the building situation, which lays a foundation for the operation of the design team and the collaborative work of various building subjects.From the professional perspective of construction design, BIM technology and VR technology are conducive to solving modeling and management problems.BIM technology is in the drawing design phase, the basic data of each component is established, and the data analysis and summary will receive engineering budget and related economic indicators.VR technology builds a real scene model, and users feel the design scheme personally, so that the effect of the scheme is more specific, intuitive and humanized.

3.3 Application in the construction stage

Among the construction stages, environmental protection materials should be strictly used in the construction stage, and each project is divided into dozens of tools. The construction methods taken in each process are different, resulting in the affected engineering budget.In green construction projects, VR technology and BIM technology should be used to simulate construction, and the simulation construction is to imitate, designers and construction engineers think about the difficulty of construction through VR technology.Feedback for problems, thereby effectively improving construction efficiency and reducing construction costs.In the construction, designers lay materials for energy conservation and environmental protection, and analyze the economic indicators, so that the owners can master the ecology and rationality of the design scheme, and provide help for the construction progress.VR technology is combined with BIM database, and advanced virtual engine is introduced to construct realistic construction scenarios.

4. Outlook of BIM + VR technology in green building

With the development of green building industry in China, BIM+VR technology has become the development trend of The Times.The past design thinking of architects broke, the architect's words improved, architects completed the green engineering design through technical means, and improved the past architectural design concept.In the past green architectural design, users participated in the research phase before design, after the project construction, into the building inside, which seriously deprived the user's speech. BIM + VR technology is conducive to improving user participation, paying attention to user feelings, using users have a sense of gain, making green architectural design to people-oriented.In the future development of green buildings, VR technology and BIM technology will change the performance situation after green building design. The performance will be simulated at the initial stage of design, and the best design scheme will be selected to avoid relying on later technology to achieve the purpose of energy saving and consumption reduction.In the future, all major can participate in project design, and each major should also promptly suggest opinions, seamlessly connect, and give amendment opinion in green construction projects, reduce the change rate of the program.BIM technology and VR technology based on CAD technology development, designers have more time to invest in the design, let green engineering building design and construction to science and technology.

5. Conclusion

Under the background of large-scale promotion of green building engineering, green building design has been criticized in architectural design for optimizing space in the early stage and continuously adding technologies in the later stage.Green buildings should pay attention to the masses. Through technical means to let users feel the green performance of the building, after the early production design, the construction staff analyzes the program, find the problems in the construction, and put forward the problem solution.In green buildings, there should be three spatial planning and design, construction, and use VR + BIM technology to improve construction quality, and ensure that green buildings meet people's needs.

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