

A Comprehensive Approach for Thermal Comfort Analysis in Green Intelligent Buildings Using BIM Technology

ABSTRACT

With the development of social economy and environmental pollution problems increasing, green intelligent building has become an inevitable trend in the development of modern architecture, which is of great significance for the sustainable development of the construction industry and environmental protection. This thesis aims to explore the feasibility of using green intelligent buildings as the general development direction for modern buildings in China based on big data, and to propose a BIM technology-based building energy consumption simulation method and thermal comfort analysis method to provide a scientific basis for the design and construction of green intelligent buildings. Based on the evolutionary stages and general process of modern architecture and the rise and evolution of the green smart building concept, we present an overview of BIM technology and green smart buildings, and propose a BIM-based method for simulating building energy consumption and thermal comfort analysis. We conducted experimental design and data collection, and analysed and discussed the results. The results show that the BIM-based approach can effectively improve the prediction accuracy of building energy consumption and the accuracy of thermal comfort assessment. Furthermore, we believe that the practical significance of this research method is that it promotes the development of greening modern buildings in China, and also provides theoretical and methodological support for further research in related fields.