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A Method Of Building Maintenance Priority Analysis Using Bim

Facility management for maintaining and improving the service level of buildings to increase the utility of buildings or facilities is planned in the phase of planning and designing throughout the entire life cycle of buildings, is conducted in the phase of use and commonly, they are continuously managed over decades depending on the life of buildings. This facility management increases productivity of facility management-related works by harmonizing individual and organizational works with physical work environments using knowledge of diverse fields, such as construction, engineering, management and behavioral sciences, and maximizes values of assets included in facilities by managing them in an efficient way. In general, a proper level of facility maintenance is adopted in view of purposes and characteristics of spaces and assets, a balance between demand for maintenance and supply of service should be maintained, based on this and a decision on preferred maintenance works and deferred works should be made. But there are some limitations as follows, when planning and managing systematic maintenance works in the current management process. First, the purposes and methods of information management for maintenance highly depend on characteristics of facility management organizations or buildings, but there is a shortage of standard system for data structure or integrated use. Second, the priority of works or the judgment of importance in the process of planning and managing maintenance works relies on facility manager's subjectivity. This decreases consistency and accuracy of result. Third, maintenance work plan and management standard or strategy needs to be modified, since constraint conditions of facility management organizations or buildings constantly change. However, it is hard to apply changed constraint conditions immediately due to the information management system, which is built in the early operating stage. Therefore, for managing information efficiently and obtaining a consistent result in the process of judging the priority of maintenance works, this study aims to suggest a method of linking BIM-based object information to the maintenance work information management process effectively using a semantic web. For this study, the present state of information management in the operational stage was examined and an ontology for semantic connection of BIM information and maintenance work information was constructed to devise a practical BIM information application method. The BIM-based information integrated management system using a semantic web presented in this study helps in acquiring required information about diverse facility management works by upgrading the existing FM information management system into a knowledge-based FM information integrated management system and automating data connection, based on semantic reasoning, and can be used as a system to provide knowledge-based FM required information, which is applicable to a variety of functions. Moreover, this is able to maximize the utilization of BIM information in FM performance by minimizing intervention of subjective judgment and improve accuracy and reliability of business outcome.

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