建築資訊模型結合元件分類在設計階段估算建案成本之實證研究

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摘要

Due to the prevalent aid of Building Information Modeling (BIM), time spent on design operation should be extended in order to contract better design proposals. Cost control in practical engineering are often inadequate when rough estimates are drafted out during the planning and preliminary design stages, ultimately failing to meet the requirements of alternatives. Also, attempting to estimate cost after detailed design and/or during the construction phase is often too complicated, time-consuming, and inefficient. In this study, U.S. construction industry's proposed UNIFORMAT II classification is applied to reinforced concrete residential buildings that are under construction. The unit price and total price will be extracted from the 3D model created with BIM tools and will be compared to the professional valuation of the commissioned project. Finally, two different alternatives will be proposed and the cost information will be extracted from the modified models to support the analysis of value engineering and to investigate the feasibility of applying UNIFORMAT II to BIM. The research shows that the assembly codes built-in the software can quickly classify BIM model components to the standards of UNIFORMAT II. In order to create a unit price database for the components, the fourth level sub-elements are necessary. When attempting to use existing data to create unit cost for the third level elements of UNIFORMAT II, it is not easy to use an automated link to encode available product cost and thus, more manpower is needed to build the component unit price database. After unit cost database of the third level elements is established, it is quite easy to extract cost information of different design alternatives to support value engineering analysis. Considering lack of cost database, it is suggested to reconsider using the use of international classification and coding of building information for quick accumulation of database, while advocating the use

of BIM in Taiwan.

關鍵字：Building information modeling, UNIFORMAT II, Cost estimate, Value Engineering