建築資訊模型的資訊建置與應用—以鋼筋混凝土加強磚造住宅的施工為例

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摘要

Building information modeling (BIM) is an object oriented parametric modeling technique linked with construction data base. The information has to be systematically inputted to the model and effectively extracted for decision making in construction sites. This study transformed conventional 2D drawings and documentations of a typical Taiwanese residential house, which is structured with brick-wall and reinforced concrete, into 3D BIM model with several parameters offered by the authoring software including object type & family, uniformat code, and master format code. A total of eight construction steps were then simulated to demonstrate effective information extraction from the BIM model for listings of resource requirement. Results have shown that most material quantities could be adequately extracted using BIM, based mainly on geometric and type & family parameters; the accurate deliverables conventionally described in specifications could be linked by using the master code attached to the relative objects and cost could be estimate based on unit prices from the linked data base; adequate usage of assembly code could improve design and maintenance efficiency. Cooperation with industries' product supply chain is also highly crucial. Reinforcing steel in most of construction sites in Taiwan as an example, in addition to the bar diameter, a series of reinforced concrete files that accurately describes the different shapes and parameters should be created. Then, the exported list of reinforcing bars can be directly applied for manufacturing different bars in the factory. To accelerate implementation of BIM, the construction industries are suggested to offer adequate BIM object of products and reorganize a sound supply chain.

關鍵字：Building information modeling, Master format, Uniformat, Cost estimate