

Identification of Architectural Design Error Risk Factors in Construction Projects Using IDEF0 Technique

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Abstract : The design process is one of the most key project processes in the construction industry. Although architects have the responsibility to produce complete, accurate, and coordinated documents, architectural design is accompanied by many errors. A design error occurs when the constraints and requirements of the design are not satisfied. Errors are potentially costly and time-consuming to correct if not caught early during the design phase, and they become expensive in either construction documents or in the construction phase. The aim of this research is to identify the risk factors of architectural design errors, so identification of risks is necessary. First, a literature review in the design process was conducted and then a questionnaire was designed to identify the risks and risk factors. The questions in the form of the questionnaire were based on the "similar service description of study and supervision of architectural works" published by "Vice Presidency of Strategic Planning & Supervision of I.R. Iran" as the base of architects' tasks. Second, the top 10 risks of architectural activities were identified. To determine the positions of possible causes of risks with respect to architectural activities, these activities were located in a design process modeled by the IDEF0 technique. The research was carried out by choosing a case study, checking the design drawings, interviewing its architect and client, and providing a checklist in order to identify the concrete examples of architectural design errors. The results revealed that activities such as "defining the current and future requirements of the project", "studies and space planning," and "time and cost estimation of suggested solution" has a higher error risk than others. Moreover, the most important causes include "unclear goals of a client", "time force by a client", and "lack of knowledge of architects about the requirements of end-users". For error detecting in the case study, lack of criteria, standards and design criteria, and lack of coordination among them, was a barrier, anyway, "lack of coordination between architectural design and electrical and mechanical facility", "violation of the standard dimensions and sizes in space designing", "design omissions" were identified as the most important design errors.

Keywords : architectural design, design error, risk management, risk factor

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