

The Rule of Architectural Firms in Enhancing Building Energy Efficiency in Emerging Countries: Processes and Tools Evaluation of Architectural Firms in Egypt

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Abstract : Achieving energy efficient architecture in general, and in emerging countries in particular, is a challenging process that requires the contribution of various governmental, institutional, and individual entities. The rule of architectural design is essential in this process as it is considered as one of the earliest steps on the road to sustainability. Architectural firms have a moral and professional responsibility to respond to these challenges and deliver buildings that consume less energy. This study aims to evaluate the design processes and tools in practice of Egyptian architectural firms based on a limited survey to investigate if their processes and methods can lead to projects that meet the Egyptian Code of Energy Efficiency Improvement. A case study of twenty architectural firms in Cairo was selected and categorized according to their scale; large-scale, medium-scale, and small-scale. A questionnaire was designed and distributed to the firms, and personal meetings with the firms' representatives took place. The questionnaire answered three main points; the design processes adopted, the usage of performance-based simulation tools, and the usage of BIM tools for energy efficiency purposes. The results of the study revealed that only little percentage of the large-scale firms have clear strategies for building energy efficiency in their building design, however the application is limited to certain project types, or according to the client request. On the other hand, the percentage of medium-scale firms is much less, and it is almost absent in the small-scale ones. This demonstrates the urgent need of enhancing the awareness of the Egyptian architectural design community of the great importance of implementing these methods starting from the early stages of the building design. Finally, the study proposed recommendations for such firms to be able to create a healthy built environment and improve the quality of life in emerging countries.

Keywords : architectural firms, emerging countries, energy efficiency, performance-based simulation tools

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