

Reduction of Energy Consumption in Buildings by Using Technology "Building Information Modeling"

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Abstract

A requirement for the buildings construction with efficient energy consumption is designing alternatives and detailed analysis of the energy used in the design phase. In conventional design methods, alternative design practically declines the possibility of designing optimized model. The building consumed energy analysis based on two-dimensional drawings, regardless of time consumption and hard work, will not provide reliable results. Technology of "Building Information Modeling" (BIM) is a process of producing a virtual three-dimensional graphical model containing the whole basic information of building that can provides basis of designing outlined various options, analyzing and selecting the best among them. In this paper, by studying previous researches (library's documented studies) of Building Information Modeling technology and their influence on optimization of energy consumption are described. Then with questionnaire preparation and surveying experts in the field of construction, probable challenges in the way of utilizing this new technology in Iran have been acknowledged and strategies to overcome these obstacles have been studied. The results of this research can be useful in the process of construction in Iran and accordingly will affect the estimation of optimized energy consumption in buildings.

Key words: BIM, Integrated Design, VDC, optimized energy consumption, building information modeling

1. Introduction

In recent decades, the world has left behind two important energy shocks; the first one started in 1970 and the other one in 2003. New energy shock associated with increased energy consumption in China and India, caused strong demand for energy and increased its prices in all over the world [1]. In other hand, new and severer shocks are highly probable due to the nonrenewable fossil fuels. In this regard,