

عنوان مقاله:

Effective energy consumption parameters in residential buildings using Building Information Modeling

محل انتشار:

فصلنامه جهانی علوم و مدیریت محیط زیست, دوره 6, شماره 4 (سال: 1399)

تعداد صفحات اصل مقاله: 14

نویسندگان:

N. Amani - *Department of Civil Engineering, Chalous Branch, Islamic Azad University, Chalous, Iran*

A.A. Reza Soroush - *Department of Civil Engineering, Chalous Branch, Islamic Azad University, Chalous, Iran*

خلاصه مقاله:

Building information modeling can help in predicting the energy efficiency in future based on dynamic patterns obtained by visualization of data. The aim of this study was to investigate the effective parameters of energy consumption using BIM technology which can evaluate the buildings energy performance. First, three forms of general states in the building were modeled to evaluate the proposed designs in Autodesk Revit Software. Then, the main building form for energy modeling and analysis was selected. Autodesk Revit 2020 software was also used to obtain the results of climate data analysis and building energy consumption index. Finally, the most optimal mode was selected by examining different energy consumption modes. The results showed that the use of building information modeling technology in adjusting the parameters affecting energy consumption can save energy cost up to 58.23% in block D. Energy cost savings for block C and the western lobby were obtained as 51.03% and 43.05%, respectively. Based on energy use intensity, energy cost savings for blocks C, D, and the western lobby were estimated as 16.67%, 16.30%, and 11%, respectively. The results of parametric studies on alternative schemes of energy use intensity optimization showed that 16.30% savings could be achieved by the base building model in a 30-year time horizon. Therefore, it was concluded that optimization of energy consumption would reduce the environmental pollutants emission and contribute to preservation and sustainability of the environment.

کلمات کلیدی:

Building energy conservation, Building Information Modeling (BIM), Energy Efficiency, Energy Management, Energy Simulation

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1021054>

