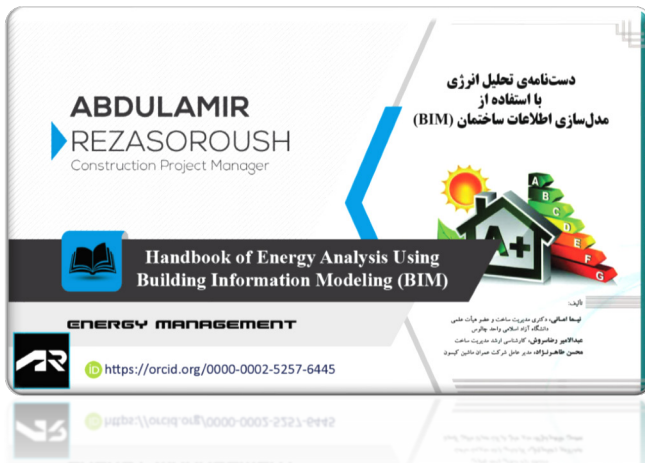


Book

Keywords:

- Energy Consumption
- Energy Performance Assessment (EPA)
- Energy Simulation
- Optimize Energy Consumption
- Building Energy Efficiency
- Building Information Modeling (BIM)



ABSTRACT

According to the United Nations Environment Programme (UNEP), buildings are the largest worldwide consumers of energy. Most of the energy used by any building is consumed during the usage (or operational) stage of the building's life-cycle. Achieving sustainable development at the national level will require minimizing the effects of buildings on the environment with the low energy consumed by buildings. The energy performance of a given building is predicted and assessed by conducting an energy simulation. Using BIM in EPAs greatly reduces time and costs. The purpose of this study was to optimize energy consumption in buildings, using Building Information Modeling Technology (BIM), which can assess energy performance in the building. In this research, the general form of the building was modeled in the Autodesk Revit Software. After reviewing the proposed designs, the main form of the building was selected for modeling. Then, according to the type of materials consumed, the equipment and location of the project, the calculation of the energy consumption of the building was carried out using relevant tools in this scope. Finally, the best possible mode was chosen by examining different energy consumption modes. The results of energy simulation showed that 61.48% of the difference between the best mode of energy consumption optimization and the current state of the building, as well as 79.35%, is compared to the initial state. Finally, parametric studies of alternative cost optimization schemes showed that saving 58.23% of the building's current status for a 30-year horizon.

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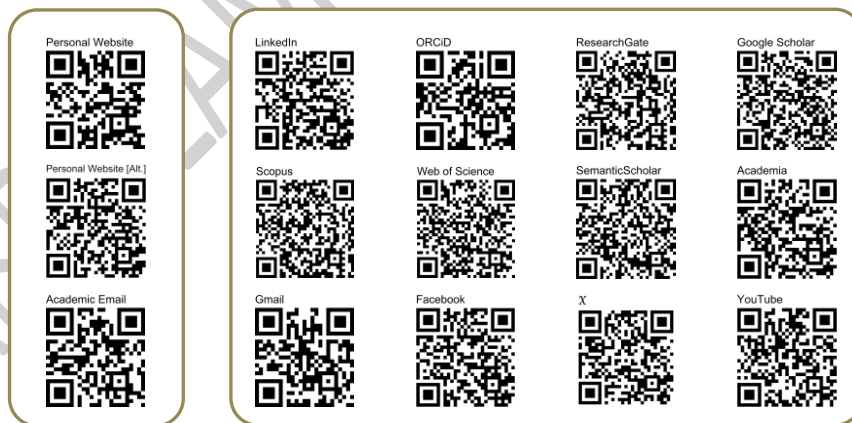
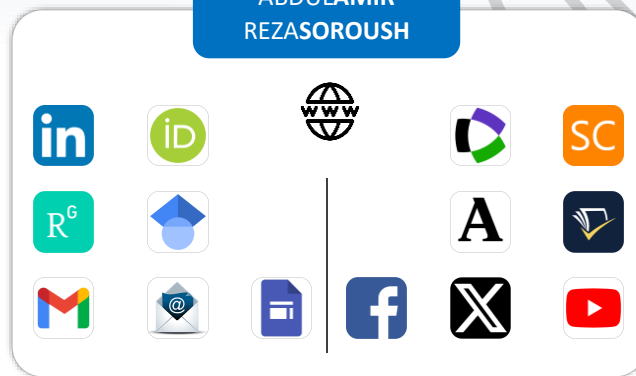
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