



Using simulation for studying the effect of Orientation on the thermal performance of Spaces in residential buildings (new assiut city as a case study)

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Abstract:

Research, in the field of studying the effect of orientation on the ambient temperature of residential buildings, is still in its early phases despite the leaps made by studies and experiments. Most climatic studies focused on studying residential buildings as to: orientation, building materials use, thermal behavior, etc. This was done by theoretical studies and few on-site measurements. Studying orientation of residential buildings by simulation is rare in the Arab world. The present generation of climatic design tools should rely more on digital presentation by computers, in order to aid designers make sound design decisions based on visible results. Thus, the computer carries out all calculations relieving designers from their heavy burden. Due to the scarce use of simulation software in the climatic assessment of residential buildings; the study aims at studying the effect of orientation on the thermal performance of spaces in residential buildings at New Assiut City, Egypt. To achieve this aim, the research is done by the analytical and applied methods, using the simulation software Thermal Analysis Software, from the climatic analysis of New Assiut City - as well as identifying the prevailing residential patterns, and detailed study of the selected residential building, identifying the software used, and analyzing the simulation results for ambient room temperatures of the cold and hot periods - for different orientations of the selected model. The research ends with a number of results and recommendations. Such results may be applied in hot desert areas. Main Subjects

Keywords:

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