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Faculty of Engineering
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Study of Renewable Energies Systems and Methods of Rationalizing Energy Consumption To Achieve a Sustainable Environmental Design

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ABSTRACT

Energy is the basis of development and a ruler element of economic so securing energy supplies is one of the most pressing issues in the ،growth in order to protect its national security and secure the needs of future ،world generations. The architect is responsible for designing facilities capable of meeting the needs of its users to provide thermal comfort to accomplish their Therefore He must take into consideration. A basic aspect ،various activities to operate the building which is energy saving. The fossil energy on which most buildings operate depend is on its way to depletion and needs many The building ،years to be consists they are also polluting the environment sector consumes a very large amount of total energy produced from the especially residential buildings. So that improving ،world's total energy energy efficiency in residential buildings through energy efficiency and the use of renewable energy systems in design has become a crucial factor to reduce negative environmental impacts. The main objective of the research is the trend towards environmental conservation and sustainable development by meeting the increasing needs of energy by exploiting environmental resources to produce new clean and renewable energies such as solar and biomass and develop strategies to activate ،systems that are suitable for new cities these systems at different levels of design with the application of the principles of sustainable environmental design and bioclimatic architecture where the energy efficiency and rationalization in the building depends on its and natural ventilation methods ،compatibility with the surrounding climate which significantly affect the energy consumption of buildings. The research focuses on the new urban communities (the new city of Fayoum) and in ،evaluating the energy efficiency of the existing residential buildings addition to test them with energy efficiency assessment programs and presenting models and proposals for environmental and sustainable design to become model cities that are environmentally friendly and energy efficient and also represent a design model that can be applied to the future extensions ، of the city and the rest of the new cities in Egypt which has similar climate.