

ZERO ENERGY UNIVERSITY BUILDINGS ENERGY PERFORMANCE EVALUATION OF FACULTY OF ARCHITECTURAL ENGINEERING IN TRIPOLI'S BRANCH

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Abstract

One of the fastest growing trends in educational building design is Net Zero Energy buildings(ZEB). There are several buildings, either completed or under construction, that are committed to achieve this incredible level of energy efficiency [4]. The Faculty of Architecture building in BAU University is chosen as a case study to evaluate the energy performance in similar buildings in comparison with zero energy design strategies. The study used the findings from the analysis to identify and correct problem within the building. The aim of the research is to change the faculty building from an energy consumer to an energy producer, in order to reach a zero-energy educational building. The fundamental design strategies to achieve zero energy building will be presented in a second part in order to use as an evaluation criteria of the case study building performance. The efficiency evaluation and comparison of the envelop criteria with the thermal standard reference adopted by the Order of Engineers and Architects in Beirut, led to identify the appropriate solutions needed to upgrade the thermal performance of the building envelope, and to determine the innovative solutions in the field of renewable energy.

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