

## **Wakala Buildings of Mamluk Era in Cairo, Egypt and Its Rating According to Rating Criteria of Leadership in Energy and Environmental Design V4**

**Authors :** M. Fathy, I. Maarouf, S. El-Sayary

**Abstract :** Our buildings are responsible for around 50% of energy consumption and most of this consumption because of spaces design, low heat isolation building material and occupant presence and behavior in buildings beside non-efficient architectural treatments. It has been shown to have large impact on heating, cooling and ventilation demand, energy consumption of lighting and appliances, and building controls. This paper aims to focus on passive treatments in Wakala Buildings in Cairo and how far it meets the LEED Criteria as the LEED - Leadership in Energy and Environmental Design - considered the widest spread rating system in the world. By studying Wakala buildings in Cairo, there are a lot of environmental potentials in it in the field of passive treatments and energy efficiency that could be found in examples by surveying and analyzing Wakala buildings. Besides the environmental treatments through the natural materials and façade architectural treatments, there is a measuring phase to declare the efficiency of the Wakala building through temperature decline between outdoor and indoor the Wakala building. Also, measuring how far the indoor conditions matched the thermal comfort for occupants. After measuring the Wakala buildings, it is the role of applying the criteria of LEED rating system to find out how fare Wakala buildings meet the LEED rating system criteria. After all, the building technologies used in Wakala buildings in the field of passive design and caused that energy efficiency would be clear and what is needed for Wakala buildings to have a LEED Certification.

**Keywords :** energy awareness, historical commercial buildings, LEED, Wakala buildings

**Conference Title :** ICADCS 2017 : International Conference on Architectural Design and Construction Systems

**Conference Location :** Rome, Italy

**Conference Dates :** September 18-19, 2017