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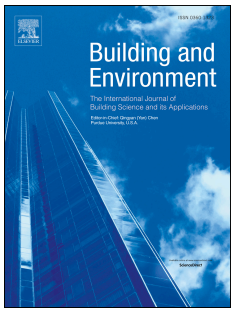

Review of museums' indoor environment conditions studies and guidelines and their impact on the museums' artifacts and energy consumption

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Review of Museums' Indoor Environment Conditions Studies and Guidelines and their Impact on the Museums' Artifacts and Energy Consumption

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Abstract

Museums are the main link between the past, the present and the future. The presence of ancient historical artifacts is the main factor differentiating museums' environment from the environments of other types of buildings. This review paper, is focused on the indoor environment quality of the exhibition halls in the museums. The information presented is based on three main aspects. Gathering the required indoor environmental parameters related to the indoor exhibition spaces in the museums then discuss in terms of temperature, relative humidity, lighting, and indoor air quality (air pollutants and ventilations); this is done while considering the museum's artifacts, visitors and personnel. The second aspect focuses on the different researches carried out within the museum indoor environment focusing on temperature (T), relative humidity (RH), lighting (artificial lighting and daylight) as well as the studies conducted within the subject of indoor environment quality of museums (IEQ). The third aspect focuses on studies and guidelines designed for upgrading existing museums into more sustainable projects by focusing on energy efficiency part of museums. This review paper provides a rich guide of all the needed information in terms of museums indoor environments parameters for the museum officials to implement strategies and enhance the current conditions of the museums. It also highlights some of the remaining issues that researchers can look at in the future.

Keywords; Museum Indoor Environment, Sustainable Museums, Intelligent Museums, Upgrading Museums, Energy Saving in Museums

1. Introduction

According to the International Community of Museums (ICOM) [1]: "A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment." As such museums are the main link between the past, the present and the future.