

Achieving Sustainable Green Buildings through the Use of LEED Certification Indices

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Abstract

The increasing concern of global warming has brought with it the need for innovation in strategies for reducing global greenhouse gas emissions. One such strategy involves optimizing efficient energy usage through green building design and operations. Leadership in Energy and Environmental Design (LEED) certification provides a framework for healthy, highly efficient, and cost-saving green buildings, which offer environmental, social, and governance benefits. Green buildings specifically LEED-certified buildings claim to provide a better work environment for their end users. This study investigated the claim that LEED-certified buildings do provide a higher level of occupant satisfaction than their non-certified counterparts. Within the context of Small Island Developing States (SIDS), seven Indoor Environmental Qualities (IEQs) were compared for office buildings located in Trinidad and Tobago. Primary data on these qualities were collected using targeted questionnaires and interviews with working professionals who were occupants of LEED-certified and non-certified green buildings. The results showed only one IEQ, thermal comfort, had a lower mean score while in general LEED buildings had a higher level of satisfaction than non-certified buildings. The study recommended areas of improvement such as thermal comfort and post-occupancy evaluations to optimize both energy efficiencies and occupancy comfort levels while reducing the output of greenhouse gas emissions.

Keywords

LEED certification, Indoor Environmental Quality, Green buildings, thermal comfort, SIDS.

