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Abstract: This research investigates sustainable building design from a new perspective – green design in relation to green building rating systems. We examine the potential influence of Green Star (GS) in Australia on the design of a project and compare this with the Leadership in Energy and Environmental Design (LEED) in America and Assessment Standard for Green Buildings (ASGB) in China. The comparison is conducted using a typical case study of a GS Six Stars certified example, the Melbourne School of Design building. A critical review concludes that LEED and ASGB are design-guide schemes while GS is a performance-based rating system and this affects the project outcome. We note that LEED is oriented to energy efficiency while GS and ASGB holistically consider energy and indoor environment quality. GS, additionally, emphasizes project process management. Potential LEED and ASGB certification levels for the case are calculated; possible changes to the design are indicated to achieve the highest LEED and ASGB levels. The predicted results demonstrate the influence of different environmental concerns and assessment approaches of the three on the green design and the performance of buildings themselves. Based on this finding, the paper argues that a performance-based rating system (e.g. GS) is more beneficial to the practice of designing green, compared with other measure-based systems.

Key words: environmental concerns; weights allocations; performance or measure based criteria; green building rating transformation

1. Introduction

The World Business Council for Sustainable Development (2007) reports that building stock accounts for 40% of total energy consumption. Apart from energy consumption, it involves the consumption of natural resources, GHG emission, production of noise and other pollutants (e.g.
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