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How green building rating systems affect designing green

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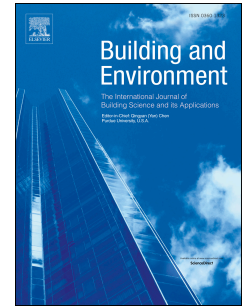
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20 **Abstract:** This research investigates sustainable building design from a new perspective –
21 green design in relation to green building rating systems. We examine the potential influence of
22 Green Star (GS) in Australia on the design of a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

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

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39 **1. Introduction**

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

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