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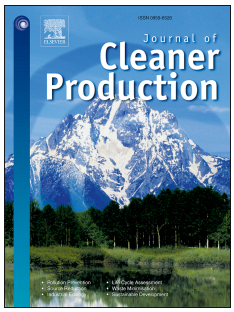

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A comparative analysis of site planning and design among green building rating tools

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Abstract

Appropriate site planning and design (SPD) is a key solution for effective land use on construction sites. A Green Building Rating Tool (GBRT) includes systematic assessment criteria to evaluate whether a building is "green" or not. The effectiveness of GBRTs have been explored in energy use, waste management, and indoor air quality in green buildings. However, no investigation has been made to evaluate the effectiveness of GBRTs in site planning and design aspects. In this research, five international GBRTs were selected for a comparative analysis, to better understand the measures that help improve SPD in green buildings. Content analysis was applied to record and compare the relevant significance of SPD-related items in the selected GBRTs. The comparative study revealed that in terms of SPD, Building Environmental Assessment Method (BEAM) Plus allocates the highest importance while Green Mark (GM) allocates the lowest. Each GBRT emphasizes different aspects of SPD in green buildings, and BEAM Plus involves the most SPD related items. In addition, the main variables for effective SPD were identified and a theoretical framework was further proposed. The proposed theoretical framework can serve as a foundation for successful SPD in green buildings. The application and potential limitations of the theoretical framework were also discussed.

Keywords: Construction site, Green building rating tool, Site planning and design, Theoretical framework