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Steel and Composite Structures
Volume 43, Number 2, April25 2022 , pages 279-292
DOI: https://doi.org/10.12989/scs.2022.43.2.279

Exploring decision-making methods for sustainable design in commercial buildings

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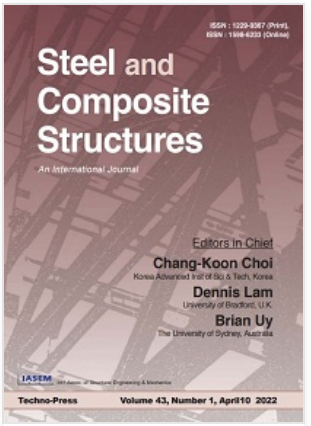

Abstract

Hundreds of decisions are taken at various phases and with diverse stakeholders along the building design processing, including the select of alternate components, materials, systems, assemblies, and building forms. Also, sustainability in the building sector is important since this business has a big influence on the environment and contributes significantly to socioeconomic growth specifically in Commercial Building. In terms of building sustainability, environmental issues are important issues in the early design stage, in which the principles of safety of structures, probabilistic reliability and durability are involved. A new integrated-design method that permits building analysis from a multi-performance view is regarded necessary to advance the sustainability. In this scenario, the environmental methodologies and footprint schemes for determining building sustainability are investigated using only a decision-making (DM) process on the basis of sustainable triple bottom line structure, which incorporates economic efficiency, resource conserving, and design for human adaption. The framework would enable design teams to achieve an optimal balance between social, environmental, and economic challenges, altering the path of construction practitioners' thought about the information used while appraising building projects, thereby aiding the sustainability of building industry. Finally, the technique of DM utilized in those decisions would influence the final building design, and hence the project's environmental, economic and social results.

Key Words

building design; performance-based assessment; safety; sustainability; method; sustainable construction

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