

A Multi-Criteria Decision Making (MCDM) Approach for Assessing the Sustainability Index of Building Façades

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Abstract : Sustainability assessment of new and existing buildings has generated a growing interest due to the evident environmental, social and economic impacts during their construction and service life. Façades, as one of the most important exterior elements of a building, may contribute to the building sustainability by reducing the amount of energy consumption and providing thermal comfort for the inhabitants, thus minimizing the environmental impact on both the building and on the environment. Various methods have been used for the sustainability assessment of buildings due to the importance of this issue. However, most of the existing methods mainly concentrate on environmental and economic aspects, disregarding the third pillar of sustainability, which is the social aspect. Besides, there is a little focus on comprehensive sustainability assessment of facades, as an important element of a building. This confirms the need of developing methods for assessing the sustainable performance of building façades as an important step in achieving building sustainability. In this respect, this paper aims at presenting a model for assessing the global sustainability of façade systems. for that purpose, the Integrated Value Model for Sustainable Assessment (MIVES), a Multi-Criteria Decision Making model that integrates the main sustainability requirements (economic, environmental and social) and includes the concept of value functions, used as an assessment tool.

Keywords : façade, MCDM, MIVES, sustainability

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