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DESIGN CRITERIA FOR INCREASING BUILDING FLEXIBILITY: DYNAMICS AND PROSPECTS

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Abstract

One of the key issues in building construction is environmental sustainability. Conventional methods of construction do not consider the in-built capacity to adapt over time according to new technical requirements and environmental consequences. Therefore, any change or renovation of the building will result in significant cost and lost use during its lifecycle. Designing flexible buildings for easy change and adaptation will assist the main concept of sustainability by reducing material and energy consumption as well as environmental pollution. This study investigates various literatures to determine the criteria they offer for flexible design. Firstly, the paper synthesises a conceptual framework for the structure of the relationship among types of changes and transformations in building as well as required reactions to changes. Secondly, design criteria in building construction, including durability, adaptability, installation and dismantling techniques are presented. A broad discussion of the important design strategies for these criteria and some examples from successful application has been presented. Finally, it has been tried to compile and reflect the key milestones in flexible building techniques and challenges ahead. By drawing together flexible building techniques in a single discussion, this paper offer valuable insights for improving the longevity of buildings and reducing the time and cost associated with reconstruction while conserving the environment.

Key words: change, design strategies, flexibility, sustainable development

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