

IDENTIFYING THE STRATEGIES AND IMPLEMENTATION BARRIERS TO REDUCE THE LIFE CYCLE COST OF GREEN BUILDINGS IN SRI LANKA

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ABSTRACT

Green building is a concept in sustainable development focused towards increasing the efficiency in using energy, water, materials and land while enhancing user health, comfort and productivity. Another aspect is minimizing the harms which causes to the environment throughout its life cycle. It was found in several studies that Green buildings are capable in providing many financial benefits than conventional buildings such as better indoor environmental quality, energy savings, water savings, waste management and lesser operations and maintenance costs.

There aren't sufficient researches which has carried out in considering the strategies to reduce Life cycle cost of Green buildings and barriers in implementing those strategies in Sri Lankan construction industry. Therefore, this research will provide a guideline of strategies to be used and barriers will occur for all the professionals involved in construction sector in Green building developments in Sri Lanka.

The objectives were achieved through a mixed method approach using a detailed questionnaire survey and semi-structured interviews which has used both quantitative and qualitative approaches in determining the strategies and barriers respectively. Common preferences and prioritizing them has given the foundation to finalize the questionnaire. The factors affect to Life cycle cost of green buildings were determined through a comprehensive literature survey which has categorized into each stage of the project life cycle and sequenced according to their importance as per perspectives of the professionals.

The findings disclose the most affected factors in pre-construction, construction, operational and maintenance, demolition and disposal stages were Developing Design (design cost and procurement type), construction, Repairing and Maintaining cost (scheduled and unscheduled) and demolition costs respectively. Secondly and thirdly, the relationships and impacts of strategies identified to the minimization of life cycle cost were proved through a correlation and regression analysis. Finally, the barriers which influences most in preconstruction, construction, operational and maintenance, demolition and disposal were Expensiveness of GB items, Lack of professionals expertise in Green concept, Complexities in using, maintaining and replacing green required systems (Solar systems, waste water and etc...) and Confusion on which parts has to be demolish and remained respectively.

Key Words – Green Building Factors, Green Building Strategies, Life Cycle Cost, Green Building Barriers