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THE APPLICATION OF LIFE CYCLE COSTING (LCC) IN INDUSTRIALISED BUILDING SYSTEMS (IBS) IN MALAYSIA

Introduction

Developing sustainable and cost-effective built environments is possible if the sustainability of design and construction methods are holistic, combining integrated design with current materials and technologies (F. Olubodun et al., 2010). The manufacturing cost is the most important cost component to consider when examined in selecting the most suitable building approach in most IBS construction. When it comes to building design, equipment, and power systems, an investor in the construction project have typically concerned with the purchase prices. They tend to underestimate the future operating or maintenance cost (Jacob M, 2006). Thus, an inefficient expense method may be chosen, resulting from the loss of a clear perspective of a property's actual expenditures.

Background of Research

Industrialised Building System (IBS)

According to Shamsuddin et al. (2013), IBS offers several economic and monetary benefits. Among the economic benefits given when implementing IBS include quality, timeless construction, and reduction of costs. Furthermore, the excellent quality attributes of IBS have resulted in lower maintenance and operation costs. CIDB Malaysia (2013) stated that many contractors were misled by the stigma of high IBS initial costs, which include material and labour costs.

Life Cycle Costing (LCC)

Life Cycle Costing emphasizes the connection between initial expenses and additional future expenses. LCC make a comparison between all cost involved to determine the future return of extra capital investment required throughout the project's whole life (Olanrewaju, 2013). According to Langdon (2005), LCC is used as an economic analysis method to evaluate numerous design and building element choices to achieve the client's goal of generating greater value of money from the building purchased and used (Langdon, 2005).

Objectives

- ❑ To find out the level of knowledge amongst contractors to apply LCC in the IBS project.
- ❑ To identify the barrier to applying LCC in the IBS project.
- ❑ To propose a strategy to encourage contractors to apply LCC in the IBS project.



Methodology

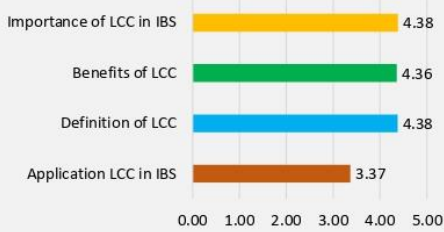
- ❑ The **quantitative method** is used as the research methodology in this study.
- ❑ The questionnaire is designed for people who are experts in the construction field of IBS formwork only.
- ❑ This includes contractors, consultants, quantity surveyors, etc.
- ❑ The Krejci and Morgan table is used to determine the size of sampling for this research and there is 60 number of contractors in Selangor that are experts in the IBS formwork system registered under the Construction Industry Development Board (CIDB). For this study, only 52 respondents are required, and the response rates are excellent.

Results

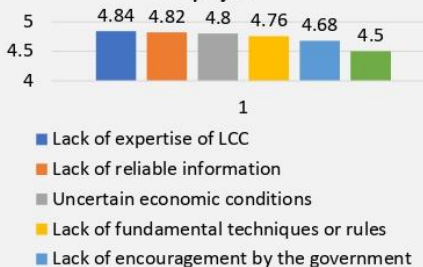
- ❑ Results show the benefits and purposes of using LCC in IBS Project is well-known but **the awareness to apply LCC in IBS project is still low.**
- ❑ It is due to the barriers such as lack of expertise, lack of reliable information, uncertainty in economic situation, lack of fundamental technique and encouragement by the government as well.
- ❑ On the other hand, this study propose several ways to apply LCC in IBS project such as through intensive training, LCC webinar and campaign and apply LCC knowledge in syllabus of higher education

Analysis

Awareness of Life Cycle Costing in the construction Industry



Barrier to implementing LCC in IBS project



Strategy to Encourage Contractors to Apply LCC in IBS Project



Conclusion

Life Cycle Costing (LCC) is best described as an economic analysis that includes all important expenses of ownership over the lifecycle of an asset, with the significant benefits of optimizing the future cost at the early design stages. Obtaining the optimal strategy to lower asset ownership expenses to produce a financially feasible investment becomes the main reason for using LCC in the IBS project. Despite that, the major barrier to implementing LCC in the IBS project is the lack of expertise of LCC. Therefore, the significant strategy to solve the issues is by adopting an intensive training program for quantity surveyors. Overall, all the objectives of this research have been successfully achieved.

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