

A REVIEW OF FACTORS AFFECTING THE BUILDING MAINTENANCE IN TROPICS

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ABSTRACT

This research paper unveils noteworthy discoveries focused on enhancing maintenance efficiency in medium-rise buildings located within tropical regions. The study focuses on identifying key maintainability factors, comparing maintenance patterns between the private and state sectors, and estimating the average maintenance cost for such buildings in the tropics.

To collect data for the study, an extensive questionnaire was employed. The collected data underwent rigorous quantitative analysis using various statistical techniques, including reliability and validity analysis, correlation analysis, regression analysis, maintenance schedule analysis, and estimation of the average annual maintenance cost.

The research findings revealed that the developed model plays a crucial role, explaining approximately 77.60% of the overall building maintenance success (OBMS) concerning the identified Building Maintenance Factors (BMF) in medium-rise buildings in tropical regions. Notably, organizational-related factors, human resources-related factors, technical-related factors, financial-related factors, and building user-related factors were found to have a significant negative correlation with OBMS. Furthermore, the study delved into the maintenance cost aspect and provided insightful data for both the private and state sectors. Specifically, in the context of private sector office buildings, the average annual maintenance cost per gross floor area (GFA) was approximately Rs. 398.20 as of the year 2021. In contrast, government sector office buildings had an average annual maintenance cost per gross floor area (GFA) of approximately Rs. 365.60 during the same period.

The implications of these findings highlight the need for prioritizing thorough analysis of maintainability factors in early-stage building projects. By optimizing maintainability through the incorporation of the identified factors, stakeholders can enhance cost-effectiveness and, in turn, reduce future maintenance costs significantly.

In conclusion, this research offers valuable insights into the importance of maintainability factors for improving maintenance efficiency in medium-rise buildings located in tropical regions. The study's quantitative approach, coupled with its significant findings, serves as a crucial reference for industry professionals, policymakers, and stakeholders looking to enhance the sustainability and economic viability of building maintenance practices in the long run.

Keywords: Maintainability in Medium-rise Buildings, Maintenance cost, Success Factors in Building Maintenance

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LIST OF ABBREVIATIONS

Abbreviation	Description
BMF	Building Maintenance Factors
BURF	Building user-related factors
FRF	Financial-related factors
HRRF	Human resources-related factors
IESL	Institute of Engineers Sri Lanka
KMO	Kaiser-Meyer-Olkin
OBMS	Overall Building Maintenance Success
ORF	Organizational-related factor
SD	Standard Deviation
SPSS	Statistical Product & Service Solution
TRF	Technical-related factor
UDA	Urban Development Authority
USA	United State of America