A REVIEW OF FACTORS AFFECTING THE BUILDING MAINTENANCE IN TROPICS

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Dissertation Submitted of the Requirements for the MSc in Building Services Engineering

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May 2024

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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

ACKNOWLEDMENTS

First, would like to express my gratitude to Prof. Rangika Halwatura, for being a great supervisor. His expertise, guidance, and supervision made a pleasant infrastructure throughout this research work, finally making it a success.

Next but essentially, I offer my hearties thanks to Dr. Anusha Wijewardene, former Program Coordinator- PG Diploma/MSc in Building Services Engineering Program for her kind and valuable advice given to me in completing this research study. I would like to extend my heartfelt appreciation to Professor S. Witharana, the Program Coordinator of the PG Diploma/MSc in Building Services Engineering, for his generous guidance and invaluable support throughout the completion of this research study.

I also extend my heartfelt gratitude to all the experts who contributed to the data collection process. Your immense support, the valuable time you dedicated to our truthful and significant discussions, and your patience and encouragement have been instrumental. This research would not have achieved success without your exceptionally special support, especially considering your demanding schedules in your respective professions.

Finally, but most certainly not least, I wish to convey my appreciation to my family members. They sacrificed their family time and pampered me by providing everything I needed to complete this task. Their unwavering support as devoted parents has been immeasurable.

Thank you once again for the encouragement you all have given me throughout this journey!

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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