UNIVERSITI TEKNOLOGI MARA

ENERGY PERFORMANCE EVALUATION OF A TYPICAL TERRACE-TYPE DOUBLE-STOREY HOME IN MALAYSIA

MUHAMMAD LUTFIL HADI BIN MOHAMAD SHAFUDIN

Diploma

January 2024

ABSTRACT

This proposed project aims to conduct an energy performance evaluation of a typical terrace-type double-storey home in Malaysia, designed to research a family of five or more individuals. The project utilizes Excel sheet templates for efficient data collection and analysis of energy usage within the home. Through a comprehensive home energy assessment, the study intends to identify areas of energy wastage and provide recommendations for energy-saving measures that can reduce consumption and costs. By implementing these measures and monitoring successive energy usage, the project evaluates the effectiveness of the measures. The primary objectives include not only identifying energy wastage but also increasing awareness of energy efficiency and conservation. The methodology involves determining the study area, selecting appropriate data collection methods, defining an effective data analysis approach, developing a comprehensive research framework, implementing energy-saving measures, and continuously monitoring energy usage to evaluate results. By completing this energy performance evaluation project, the researcher expects to gain valuable skills in data collection, analysis, and presentation using Excel sheet templates. Moreover, the project aims to enhance awareness of energy efficiency and conservation, leading to actionable recommendations for reducing energy consumption and costs in typical terrace-type double-storey homes in Malaysia.

ACKNOWLEDGEMENT

Firstly, I wish to thank God for giving me the opportunity to embark on my diploma and for completing this long and challenging journey successfully. My gratitude and thanks go to my supervisor, Madam Siti Nur Amalina Binti Aznam.

Finally, this dissertation is dedicated to my father and mother for the vision and determination to educate me. This piece of victory is dedicated to both of you. Alhamdulillah's.

TABLE OF CONTENTS

		Page
CON	FIRMATION BY SUPERVISOR	ii
AUT	AUTHOR'S DECLARATION	
ABSTRACT		iv
ACK	ACKNOWLEDGEMENT	
TAB	LE OF CONTENTS	vi
LIST	OF TABLES	viii
LIST	OF FIGURES	ix
LIST	OF ABBREVIATIONS	X
СНА	PTER ONE : INTRODUCTION	1
1.1	Introduction	1
1.2	Background of Study	2
1.3	Problem Statement	2
1.4	Objectives	3
1.5	Scope of Work	3
1.6	Expected Results	4
1.7	Methodology Overview	4
СНА	PTER TWO : LITERATURE REVIEW	5
2.1	Literature Review	5
2.2	Overview of A Typical Terrace-Type Double-Story Home in Malaysia	6
2.3	Energy Consumption Patterns in Malaysian Homes	7
2.4	History of Energy Performance Evaluation	8
2.5	Importance of Energy Performance Evaluation	8
2.6	Energy Efficiency Measures and Strategies	8
2.7	Performance Evaluation Techniques and Tools	9
СНА	PTER THREE : METHODOLOGY	10
3.1	Methodology	10

3.2	Determining the Study Area	12
3.3	Identify the Data Collection Method and Data Analysis Approach	13
3.4	Develop a Research Framework	14
3.5	Implement Energy-Saving Measures	15
3.6	Monitor Energy Usage and Evaluate Results	16
3.7	Flowchart Error! Bookmark not	defined.
3.8	Preliminary Results	17
3.9	Gantt Chart	20
СНА	PTER FOUR : RESULTS AND DISCUSSION	26
4.1	Introduction	26
4.2	Household Information	26
4.3	Appliance Inventory	28
4.4	Monthly Energy Consumption	30
СНА	PTER FIVE : CONCLUSION AND RECOMMENDATIONS	32
5.1	Introduction	32
5.2	Energy Assessment	32
5.3	Recommendations for Energy-Saving Measures	33
5.4	Conclusion	34
REFI	ERENCES	35