

**UNIVERSITI TEKNOLOGI MARA PERAK
BRANCH**

POROUS CERAMIC ROOF INSULATION

NURUL NABILA HUSNA BINTI ZULKIFLI

Innovation project report submitted in partial fulfillment of the
requirements for the degree of

Bachelor of Science (Hons.) Construction Technology

Faculty of Architecture, Planning, and Surveying

July 2022

AUTHOR'S DECLARATION

I declare that the work in this innovation project report was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

If the event that my innovation project report, be found to violate the conditions mentioned above, I voluntarily waive the right of conferment of my degree and agree be subjected to the disciplinary rules and regulations of Universiti Teknologi MARA.

Name of Student : Nurul Nabila Husna binti Zulkifli
Student I.D. No. : 2020828828
Programme : Bachelor of Science (Hons) Construction Technology
Faculty : Architecture, Planning & Surveying
Innovation Title : Porous Ceramic Roof Insulation
Student's Signature :
Date : July 2022

ACKNOWLEDGEMENT

First and foremost, praise be to Allah, the Most Merciful and the Most Graceful. Despite my difficulties in completing the assignment, I was able to complete this innovation report.

First and foremost, I would like to thank my supervisor, Ts. Dr. Wan Nur Syazwani binti Wan Mohammad, for encouraging me to keep pursuing the project and teaching me throughout the process of completing the report. Thank you so much for all of your encouragement, suggestions, ideas, opinions, criticism, improvements, and corrections. Any remaining errors are mine.

In addition, I'd like to thank Assoc. Prof. Ts. Dr. Siti Akhtar binti Mahayuddin and Dr Asmat binti Ismail, advised me on the format of the report and shared knowledge and insight into the journey of this innovation project.

Most importantly, I owe my greatest gratitude to my family, who never stops supporting my physical and, especially, mental health. They were never tired of praying for my success.

Finally, I would like to thank my classmates for never giving up on teaching each other and providing moral support. We each have our tasks to complete, but we all work together to complete them. Thank you very much.

TABLE OF CONTENTS

AUTHOR’S DECLARATION	ii
ACKNOWLEDGEMENT	iii
LIST FIGURES	viii
LIST OF TABLES	x
ABSTRACT	xi
CHAPTER 1 INTRODUCTION	1
1.1 Introduction to Chapter	1
1.2 Background of Study	1
1.3 Problem Statement	3
1.4 Research Question	4
1.5 Research Objectives	4
1.6 Scope of Study	5
1.7 Limitation of Study	5
1.8 Significant of Study	6
1.9 Organization of Final Report	6
CHAPTER 2 LITERATURE REVIEW	8
2.1 Introduction to Chapter	8
2.2 Various Innovation Approaches	8

ABSTRACT

Malaysia's construction industry has risen to become one of the country's fastest-growing industries. Green building is becoming more popular to increase the use of sustainable products in the construction industry. The focus of this innovation project is on thermal comfort in student accommodation. Problems such as thermal discomfort could indeed arise, causing stress and irritation. As a result, an innovation concept known as Porous Ceramic Roof Insulation is created as a solution to the problems identified. The report's objectives are to identify current issues and problems with roof insulation, to propose an innovative idea for improving roof insulation in student accommodation, and to suggest the potential marketability of the proposed innovation product. The method used for the development of this innovation idea included a literature review on relevant topics related to Porous Ceramic Roof Insulation to accomplish the objectives. A simulation approach is used to run and validate the findings of the innovation idea. Based on the data gathered, a comparative analysis is performed, with the findings resulting in comparisons between existing roof insulation and Porous Ceramic Roof Insulation. Furthermore, based on previous research, Porous Ceramic Roof Insulation has the potential to be marketed to potential users. It is hoped that the Porous Ceramic Roof Insulation innovation would improve the building's wellbeing while also increasing thermal comfort.