### UNIVERSITI TEKNOLOGI MARA

## **COCOPEAT GREEN ROOF**

### MOHAMMAD AMIR AZURREN BIN AHMAD NOZAL

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

**Bachelor of Science (Hons.) Construction Technology Department of Built Environment and Technology Studies** 

**AUTHOR'S DECLARATION** 

In the name of MOHAMMAD AMIR AZURREN BIN AHMAD NOZAL,

declaring that the work that being completed in this innovation project report

was carried out in accordance with the regulation of Universiti Teknologi

MARA. This innovation project is the original and is the results of my own work,

unless otherwise indicated or acknowledge as referencedwork. I can ensure that

this topic has not been submitted to any other academic institution or non-

academic institution for any degree or qualification.

In case or in the event that my innovation 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: MOHAMMAD AMIR AZURREN BIN AHMAD

**NOZAL** 

Student's I.D. No. 2019252948

Programme: Bachelor of Science (Hons.) Construction Technology

Faculty: Department of Built Environment and Technology

Studies

Innovation Project Title: Cocopeat Green Roof

Signature of Student: ......

Date: AUGUST 2022

i

#### **ABSTRACT**

Malaysia is a developing third-world country experiencing rapid economic expansion. In fact, Malaysia's construction industry is one of its most active, contributing significantly to the country's economic growth. The construction industry has undergone various transformations, beginning with ancient ways and progressing to conventional methods and now to technology. The Industrial Building System (IBS) is gaining popularity in the construction industry due to its multiple advantages. The roof is the most important component of the structure since it protects the occupants from a number of risks. Roofing requirements have grown across the board, resulting in a healthy market for roofing materials in terms of performance and physical attributes. However, there are a number of issues that influence the performance of roof materials. Various issues have been identified as affecting the effectiveness of roofing materials in previous study. The identified issues and problems are durability, ability to reduce heat gain and also relative weight of the roof structure. It offers an opportunity to propose new innovative items to address major concerns by recognising problems. As a result, new innovative concepts are proposed to address the issues while also promoting the use of eco-friendly materials.

#### **ACKNOWLEDGEMENT**

Alhamdulillah, praise to Allah S.W.T our creator. I am so blessed that I have managed to put the end to my internship session successfully with Allah's blessings I would like to thank him for giving me good health and ability to go through my innovation project peacefully and well. Also, my academic supervisor Ts. Sr. Wan Akmal Zahri Bin Zaharuddin for helping me during my final year project with abundance of information and helpful feedbacks to ease my working journey. I want to thank my family for giving me the guidance and passion to continue my studies, especially my parents for working hard to make sure that I can finish my final year project done properly. Last but not least, I want to thank me. I want to thank me for believing in me and doing all this hard work. I want to thank me for having no days off. I want to thank me for never quitting.

# **Table of Content**

<b>AUTHOR'S</b>	S DECLARATION	i
ABSTRAC'	Γ	ii
ACKNOW	LEDGEMENT	iii
List of Figu	re	vi
List of Plate	·	vii
List of Diag	ram	viii
List of Tabl	e	ix
CHAPTER	1	1
INTRODU	CTION	1
1.1 Intr	oduction to Chapter	1
1.1 Bac	kground of Study	1
1.2 Intr	oduction to Cocopeat Green Roof	3
1.3 Pro	blem Statement	7
1.2 Issu	es and Problems	8
1.2.1	Thermal Comfort Issue	8
1.2.2	Increase in Energy Consumption	8
1.2.3	Heavyweight Roofing Materials	9
1.2.4	Fragile	9
1.3 Rese	earch Question	10
1.4 Rese	earch Objectives	10
1.5 Scor	pe of Study	11
1.6 Lim	itation of study	11
1.7 Sign	ificance of Innovation Idea	12
CHAPTER	2	13
LITERATU	JRE REVIEW	13
2.1 Intr	oduction to Chapter	13
2.1.1	Insulated Roof Panels	13
2.1.2	Solar Shingles	15
2.1.3	Concrete Roof Tile	16
2.1.4	Green Roof	18
2.2 Pro	perties of Cocopeat Growing Media	20