UNIVERSITI TEKNOLOGI MARA
PERAK BRANCH

HEAT-REFLECTIVE WALL PANEL

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Innovation project report submitted in partial fulfilment of the requirements for the degree of
Bachelor of Science (Hons.) Construction Technology

Department of Built Environment Studies and Technology

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.

In 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.

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ACKNOWLEDGEMENT

Alhamdulillah, first and foremost, I would want to express my gratitude to Allah SWT for allowing me to complete this final year project successfully.

I would like to express my deep and sincere gratitude to my research supervisor, Ts. Azira bt Ibrahim, Dr. Asmat bt Ismail, and Assoc. Prof. Ts. Dr. Siti Akhtar bt Mahayuddin, for giving me the opportunity to do research and providing invaluable guidance throughout this research. They have taught me the methodology to carry out the research and to present the works as clearly as possible. It was a great privilege and honour to work and study under their guidance.

Also, I would like to express my thanks to all my friends especially Sarah Nadhirah, Nurul Sarah and Karmila for their help and support during the research. Last but not least, I am extremely grateful to my parents for their prayers and sacrifices for educating and preparing me for my future.

ABSTRACT

Heat-reflective wall panel is a wall panel that has a heat reflection characteristic. The purpose of this study is to produce a new wall panel by using eco-friendly material and reduce the uses of air-conditioning. There are three objectives to achieve in this research which is to identify the issues and problems of the current precast concrete wall, to investigate on how to produce a new wall panel and to suggest the marketing potential of the heat-reflective wall panel. The observation of the issues and problems carried out to generate an idea to produce a new wall panel and to identify the installation of wall panel. In conducting this research, the ideas of the innovation are come from the various types of wall panel that been used in construction industry. The first type is Phase Change Materials (PCM) in Perforated Brick that is a high fusion heat and can store or release a lot of energy during melting and solidifying processes. Next is 3D Printed Metal Brick. This brick is inspired by the Muscatese Evaporative cooling window. It is combines a wood screen, or mashrabiya, and a ceramic vessel filled with water. The third one is called Brick Cavity Wall that they were constructed of a 9–12 cm thick brick veneer, an air gap (the hollow), and an inner leaf that was 9–19 cm thick, made of concrete blocks, perforated big format bricks, or calcium silicate blocks that was completed with an inside plastering. The last one is Fan and Evaporative Cooling System is one of the most often utilized ventilation technologies for animal housing to reduce heat stress produced by consistently high ambient temperatures. Then, with the information got from the readings been using to produce the new wall panel called "Heat-Reflective Wall Panel". There are three data collection method in this research which is literature review, simulation and data analysis.

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