UNIVERSITI TEKNOLOGI MARA
PERAK BRANCH

INSULATED CONCRETE FORMS (ICF): ECO FIBRE CONCRETE WALL

NURUL HIDAYAH BINTI ABDUL JALAL

BSc

August 2022

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

Faculty of Architecture, Planning & Surveying

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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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ABSTRACT

Over the past few years, the UiTM Perak Branch's Seri Iskandar Campus has continued to utilize the same type of concrete, which is incompatible with the idea of a green campus. The buildings on the campus have numerous wall issues after the building was finished, whether it took a year or more. These issues included water infiltration, mould development, paint flaking, and improper concrete material management during the construction process. All of these difficulties would cause discomfort, health problems, and a lack of safety for the pupils. The research's aim is to investigate the use of polypropylene fibre in concrete for insulated concrete forms in order to preserve the structural integrity of the building and follow green building principles. Desktop studies, study of a prototype model, and examination of an experiment were the research approaches employed to accomplish this goal. Based on an experiment with two different types of concrete, fresh concrete succeeded in meeting the requirements of the compressive strength test, however Eco Fibre Concrete, which used polypropylene fibre as an additive, failed to do so. Insulated concrete forms (ICF) and Eco Fibre Concrete (EFC) are thus the innovation ideas, and ICF buildings' high energy efficiency may have a positive impact on the environment. ICF buildings also offer excellent comfort, are safe and disaster-resistant, and take less time and less effort to construct than other types of structures. The less polypropylene fibres are used in the concrete, the better compressive strength test of Eco Fibre Concrete would met the requirements and showed that it was safe to use in the construction project to provide the green concept for the buildings.

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