UNIVERSITI TEKNOLOGI MARA
PERAK BRANCH

AUTOCLAVE SOLAR CONCRETE CURING CHAMBER

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BSc

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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

Curing has a significant impact on the strength and durability of precast concrete. A sufficient amount moisture is retained in properly cured concrete for continuous hydration and the development of strength, volume stability, thawing resistance, and abrasion and scaling resistance. The current curing procedure takes 28 days to complete, which is causing the storage of precast blocks and the flow of storing the elements to delay. When the method and machine used during the curing process are inefficient, duration delays are frequent. The energy needed to cure the concrete is the primary issue in any accelerated curing method. The previous curing method consumes a lot of electricity and it is not very eco-friendly. The purpose of this innovative product is to provide a solution for a high-quality curing process in a reasonable amount of time to accomplish the expected measurement over the structure's design duration while using renewable energy to save the environment. The purposes of this paper are to review the current issues concerning precast concrete curing, propose an innovation product to address curing method issues, and analyze the marketability of the innovation product. This research is based on a review of the literature from reliable sources in order to evaluate worldwide precast concrete curing issues. Furthermore, using SketchUp software, a simulation is built to illustrate the concept and application of the Autoclave Solar Concrete Curing Chamber. This final report is conducted by survey form distributed to IBS worker from different companies to gather the information regarding the current curing issues and marketability of the product. Fortunately, the respondents highlighted the significance of marketing the innovative product. In a word, the ASCCC has a commercial value to where it can reduce the time required to manufacture precast blocks and solve storage problems with the use of renewable energy.