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BUILDCON2023

COMPILATION OF PROJECT INNOVATION IDEAS
SEMESTER MARCH – AUGUST 2023

EMBRACING SMART CONSTRUCTION TRANSFORMATION

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Department of Built Environment Studies and Technology
College of Built Environment
Universiti Teknologi MARA Perak Branch

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Organised by
Department of Built Environment Studies and Technology
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PRODUCE A HOLLOWBLOCK USING COCONUT COIR

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Produce A Hollowblock Using Coconut Coir

Innovation Idea:

To reduce negative environmental effect, the construction sector is facing increasing pressure to adopt sustainable and eco-friendly techniques. This study explores the inclusion of coconut coir, a natural and renewable resource, into hollow cement blocks to improve structural integrity and insulating properties. The research encompasses the design, assembly of a prototype, and thorough performance assessment of the coconut coir-infused hollow cement blocks. With growing recognition of environmental sustainability, there is an increase of interest in eco-friendly building materials. This study examines the use of coconut coir, a renewable and biodegradable component, in the production of hollow cement blocks. The research entails the formulation of an appropriate mix design, creation of hollow blocks with various concentrations of coconut coir, and assessment of their mechanical characteristics and environmental effects. The results show that the addition of coconut coir improves the block's strength, reduces its weight, and improves thermal insulation. This suggests that coconut coir can be used as a sustainable alternative in the construction industry. Subsequently, an experiment was conducted to assess the suitability of coconut fibre in cement hollow block work. The goal of the experimental investigation was to employ coir fibre as a feasible, affordable way to increase the shear strength of cement hollow blocks. The author tested roughly 18 samples with various coir fibre percentages, and the results are detailed in this work. According to the experimental findings, adding 3% coconut coir in proportion to the weight of cement in the concrete hollow block mixture can raise the shear strength of cement hollow blocks by 40%.

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