



UNIVERSITI
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BUILDCON2023

**COMPILATION OF PROJECT INNOVATION IDEAS
SEMESTER MARCH – AUGUST 2023**

EMBRACING SMART CONSTRUCTION TRANSFORMATION

BUILDERS' CONVENTION DAY 2023

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

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Department of Built Environment Studies and Technology
College of Built Environment
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Malaysia

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LIGHTWEIGHT CONCRETE GREEN WALL PANELS

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Lightweight Concrete Green Wall Panels

Innovation Idea:

Coarse aggregate is one of the materials used in the concrete mixture to produce a strong concrete structure. Nevertheless, the use of the material has resulted to environmental problems. Lightweight Concrete Green Wall Panels is a product that can address issues in the ceramic industry and help alleviate environmental concerns in forests due to excessive aggregate quarrying. This research aims to develop a Lightweight Concrete Green Wall Panels by using crushed clay pottery to reduce the amount of waste in Malaysia. Data were collected through document review, design thinking, experimental approach, and secondary data analysis. The data was analysed using graphical representations from Excel software and by calculating the mean, average, and standard deviation of the specimens. Four types of concrete were prepared to produce the suitable concrete mixture including normal, 10%, 20%, and 30% of recycled crushed clay as a substitute for the coarse aggregate to produce the lightweight concrete. Based on the result in terms of compressive strength, tensile strength, density, and water absorption tests, a replacement rate of 30% was selected to assemble the prototype of the Lightweight Concrete Green Wall Panels. The marketability of the product was assessed based on previous research on the usage of green walls in Malaysia. One limitation of this research is that only concrete mixture characteristics were tested, while the effectiveness of the green wall was not assessed due to inadequate testing instruments. However, with the implementation of lightweight green wall panels, it could bring significant benefits in terms of climate change, land conservation, and the health and well-being of users. Thus, further research and experimentation could involve using a higher percentage of recycled crushed clay and testing the effectiveness of green wall for users.

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Sekian, terima kasih.

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