



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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Organised by
Department of Built Environment Studies and Technology
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Malaysia

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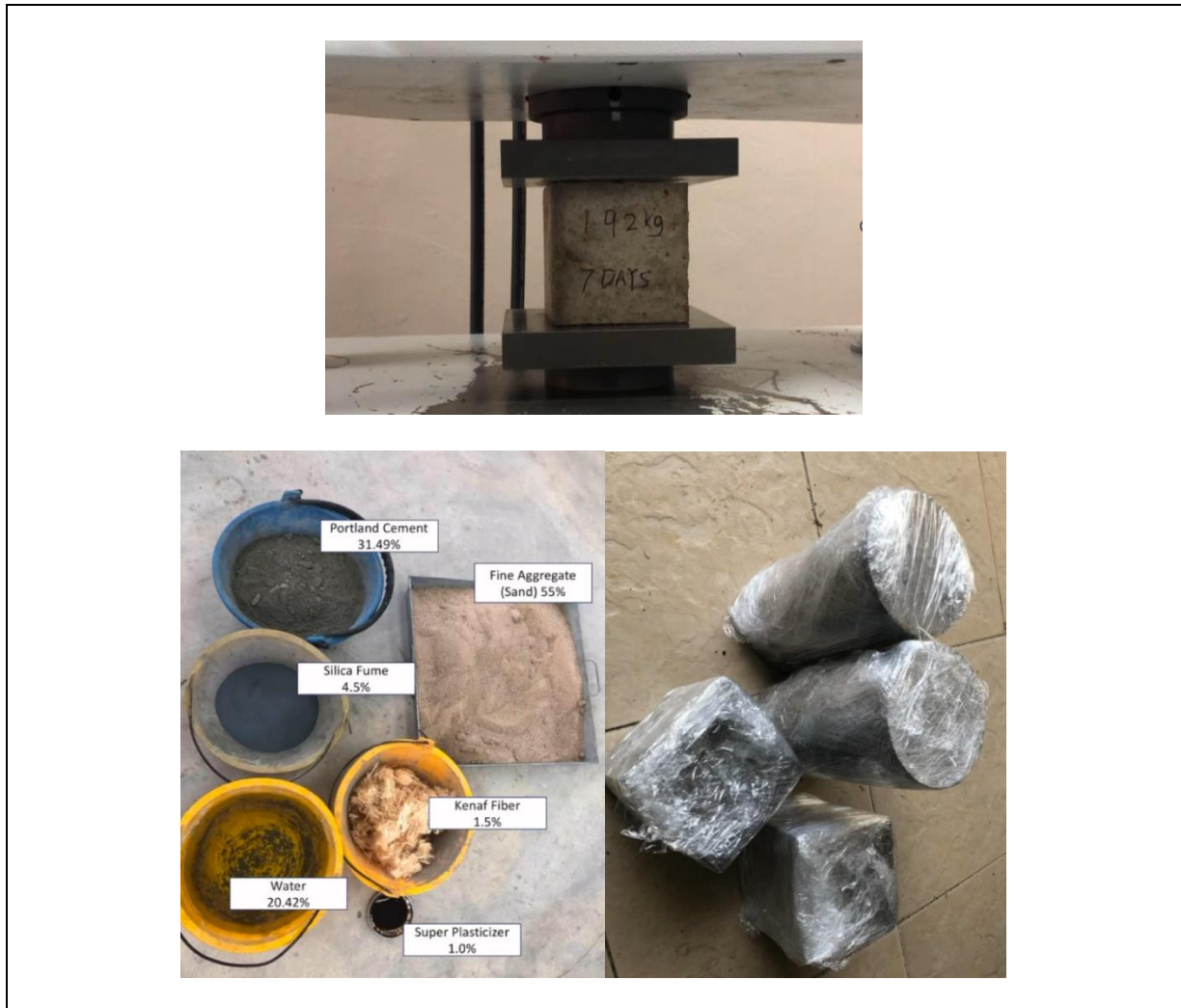


INNOVATION OF IBS 3D PRINTING MIX DESIGN MATERIAL TENSILE PERFORMANCE WITH KENAF FIBRE

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Innovation Of IBS 3D Printing Mix Design Material Tensile Performance With Kenaf Fibre

Innovation Idea:

The construction industry has experienced a paradigm shift, leading to a growing demand for sustainable construction methods. 3D printing technology has revolutionised the construction industry by allowing for mass-customisation of structures, reducing the need for formwork and labour. However, 3D printing has faced challenges due to unstable and low-strength materials, making it an expensive method. This research aims to find a sustainable material for 3D printing technology in the construction industry, ensuring its strength, cost, and handling methods are superior to those of existing materials. The use of natural building materials from plant waste is crucial for reducing the cost of construction using 3D printing technology in a country. This research aims to identify a sustainable material suitable for 3D printing technology in the construction industry, ensuring that it

exhibits greater strength, cost-effectiveness, and ease of handling compared to the materials currently used in building construction. In addition to acquiring more precise data, the goal of this research is to examine the efficacy of the proposed material for use in Machine 3D Printing and to compare the strength of this new study material with those of materials that have been employed in previous studies. This demonstrates that the proposed material, Kenaf Fibre Mortar, was found to have a higher tensile strength than the 3D printing mix material used by 3D printing companies such as WinSun and Apis Cor. This material mix exhibits promising outlook in terms of buildability and flowability.

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Prof. Madya Dr. Nur Hisham Ibrahim
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Sekian, terima kasih.

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SITI BASRIYAH SHAIK BAHARUDIN
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