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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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COMPILATION OF PROJECT INNOVATION IDEAS
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Organised by
Department of Built Environment Studies and Technology
College of Built Environment
Universiti Teknologi MARA Perak Branch
Malaysia

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Perpustakaan Negara Malaysia

Cataloguing in Publication Data

No e- ISBN: 978-967-2776-24-6

Cover Design: Muhammad Naim Mahyuddin

Typesetting : Siti Akhtar Mahayuddin

e ISBN 978-967-2776-24-6



A STUDY OF RECYCLE CLAY INCORPORATED WITH RICE HUSK INTO IBS BLOCK

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A Study Of Recycle Clay Incorporated With Rice Husk Into IBS Block

Innovation Idea:

Rice is a prominent crop in Asia and various other regions. Improper disposal of rice husks leads to environmental issues, including pollution of soil, air, and water. Thus, utilising waste materials in block manufacturing can optimise block performance, leading to a more sustainable construction. This research aims to reduce the open burning of rice husks and waste collection from ceramic pot waste. In addition, clay and recycled rice husks are used as alternatives to make Industrialised Building System (IBS) blocks to produce an environmentally friendly product and shorten the installation time. These blocks are evaluated with two different mechanical tests, such as compressive strength and ultrasonic pulse velocity (UPV). Eighteen (18) sample cubes with dimensions of 100mm x 100mm x 100mm were prepared and assessed accordingly. The study demonstrates that the optimal design mix without rice husk achieved a compressive strength of 14.4MPa, whereas the mix containing 6% rice husk yielded a value of 9.5MPa. This strength is suitable for wall construction. Nonetheless, the ultrasonic pulse velocity results show that recycled clay without rice husk additives remains viable for the construction industry, as is the case with high-quality concrete in favourable conditions. However, this is limited to 6% quality concrete mixes in moderate conditions and specific construction types. Finally, this study affirms the acceptability of utilising recycled clay combined with rice husk waste for block production.

Surat kami : 700-KPK (PRP.UP.1/20/1)

Tarikh : 20 Januari 2023

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