



INTERNATIONAL RESEARCH SYMPOSIUM - 2024 (IRS 2024-UoVT)

Vocational Technology Education for a Sustainable Greener Economy



University of Vocational Technology
Sri Lanka

December 2024

ABSTRACT PROCEEDINGS

International Research Symposium - 2024

IRS 2024 - UoVT

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Chairman's Name

MESSAGE FROM THE KEYNOTE SPEAKER

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Sincerely,
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MESSAGE FROM THE GUEST OF HONOUR

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Dr. Nadeesha Chandrasena posing with her two awards

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Sincerely,
Chairman's Name

MESSAGE FROM THE DEAN, FACULTY OF ENGINEERING TECHNOLOGY

Dear Participants,



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TECHNICAL SESSION 1

EDUCATIONAL STRATEGIES FOR SUSTAINABLE TVET

Rathmalana, Sri Lanka | 12th. December 2024

EVALUATING THE THERMAL INSULATION PROPERTIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

R.M.M.H.U. Chandrasiri^{1*}, R.S. Kumara¹, T. Luckshanth¹, Kasun Nandapala¹

^{1*} *Department of Construction Technology, University of Vocational Technology, 100, Kandawala, Rathmalana, Sri Lanka.*

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Keywords: Thermal resistance, natural insulation, Mushroom production

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TECHNICAL SESSION 2

ENGINEERING TECHNOLOGY FOR GREEN ECONOMY

Rathmalana, Sri Lanka | 12th. December 2024

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Abstract: In Sri Lanka, most of the traditional domestic buildings, which include residential houses are based on clay bricks. Production of the traditional clay bricks involves a burning step using firewood, which contributes to deforestation, air pollution, and also emission of carbon dioxide gas. This step contributes to high energy consumption and associated costs as well. This study was mainly aimed at improving the strength characteristics of the unburnt clay bricks by incorporating coconut coir as a reinforcing phase to the same. Since burning of bricks hasn't taken place, all associated disadvantages aren't issues of the study. Visual appearance, density, water absorption, compressive strength, and thermal conductivity were the tested properties. Coir percentage was varied by 0%, 10%, 20%, 30%, 40% and 50% by volume. As outcomes, 10% coconut coir-added bricks were selected as the composition with the highest quality. These bricks show a better compressive strength of 1.761 Nm^{-2} compared to 1.654 Nm^{-2} of the clay bricks with no coir addition. However, none of the brick composition showed a favourable level of water absorption. Bricks with selected composition can be recommended to be applied in non-load-bearing applications where water attack is unlikely.

Keywords: Compressive Strength, Clay Bricks, Coconut Coir, Reinforcing Material, Water Absorption.

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EVALUATING THE THERMAL INSULATION PROPERTIES OF MUSHROOM PRODUCTION WASTE IN BUILDING APPLICATION

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TECHNICAL SESSION 3

DIGITAL TECHNOLOGIES AND CREATIVE INDUSTRIES

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TECHNICAL SESSION 4

INNOVATION AND ENTREPRENEURSHIP FOR ECONOMIC RESILIENCE

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TECHNICAL SESSION 5

SUSTAINABLE PRACTICES FOR MULTIFUNCTIONAL GREEN ECONOMY

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A REVIEW OF DEVELOPED LEAN CONSTRUCTION FRAMEWORKS IN THE SRI LANKAN CONTEXT

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Abstract: There is a growing necessity to thoroughly review the developed lean construction frameworks within a Sri Lankan context because most of the developed frameworks in this country were introduced at a conceptual level and in a scattered diffused manner across various construction domains. Several scholars have underscored the lack of comprehensive frameworks encompassing the entire construction lifecycle and the absence of industry-validated processes in Sri Lanka from 2012 to 2018. After 2018, a few frameworks emerged, but they exhibit significant limitations, such as insufficient transparency, biases, and reliance on limited mono or bi-evidence case studies on lean tool implementation. This study aims to review existing lean construction frameworks developed from 2012 to 2024, identifying their benefits, shortcomings, issues, and limitations through a comprehensive literature review-based approach. As one of the pioneering review studies in this area, the summarized tabular framework demonstrates the drawbacks and loopholes while providing suggestions to overcome them. The outcomes provide new thinking perspectives for novel framework development that apply in Sri Lanka and other developing countries that share the same level of lean construction maturity and characteristics. This paper will be a foundation for determining future probable areas such as: cost overrun, time delays, quality issues, risk predictability, and stakeholder management to consider in lean construction framework development in the Sri Lankan context.

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