

Rathmalana, Sri Lanka | 12<sup>th</sup>. December 2024

## USE OF COCONUT COIR TO IMPROVE STRENGTH PROPERTIES OF DRIED CLAY BRICKS

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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  $1.761 \text{ Nm}^{-2}$  compared to  $1.654 \text{ Nm}^{-2}$  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.