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POLYPROPYLENE FIBRE REINFORCED LATERITE BRICK

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ABSTRACT

The main aim of this research was to study the effect of incorporation of polypropylene fibres in the non-fired pressed laterite bricks. The objectives of the research were to study the physical properties including the size, weight, density and water absorption and determine the mechanical property, which was compressive strength. The effect of moisture content of constituent materials on the compressive strength control bricks was also determined. It was also important to observe the effect of various fibre contents. The tests were carried out according to BS 3821:1985 for clay bricks. The polypropylene fibre reinforced laterite (PFRL) bricks were pressed at factory and tested at Material Testing Laboratory, UiTM. Seven types of brick specimens were tested.

The findings of this research showed that, firstly, incorporation of polypropylene fibres between 0.5% to 2% into the bricks had increased the densities of PFRL bricks. Secondly water absorptions of low fibre content PFRL bricks (0.5%,1% and 2%) were lower than the water absorption of control brick and water absorption of high fibre content PFRL brick (3% and 5%) were higher than water absorption of control brick. Lastly, the compressive strengths of low fibre

content PFRL bricks (0.5%, 1%, and 2%) were higher than compressive strength of control brick and the compressive strength of high fibre content of PFRL bricks (over 3%) were lower than the compressive strength of control brick. The highest strength obtained was 12.56MN/m² from the bricks with 0.5% fibre content.

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