

Effect of crushed clay brick as partial fine aggregate replacement on properties of concrete

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ABSTRACT

The continuous construction activity increases the demand for concrete production. At the same time, the construction and demolition activity also generate solid waste which is disposed of at landfills. The approach of discarding waste such as concrete waste, brick waste, and timber waste pollutes the environment. Thus, the present research investigates the effect of integrating local clay brick waste as a partial fine aggregate replacement on the properties of concrete. Several concrete mixes were prepared by integrating various percentages of crushed clay brick ranging from 0%, 5%, 10%, 15% and 20% as partial sand replacement in concrete. All specimens were subjected to continuous water curing until the testing date which is 7 days and 28 days. The finding shows that the use of up to 10% crushed clay brick successfully enhances the compressive strength of concrete. The water absorption of concrete increase as larger content of crushed clay brick waste is integrated in the mix. Basically, the use of clay brick waste in concrete would help to reduce dependency on river sand supply for concrete manufacturing and promote a cleaner environment.

KEYWORDS

Clay Brick Waste; Concrete; Partial Fine Aggregate Replacement; Water Absorption; Workability

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