

Experimental Investigation of Self Compacting and Self Curing Cement Paving Blocks Incorporated with Hypo Sludge and Silica Fumes

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ABSTRACT

Paving blocks are essential in construction works. In 9000 BCE, use of unfired bricks was initiated. The fired bricks are in use since 4000BC. Even though, fired bricks boost the mechanical properties but they have drawback of emission of CO₂ and scarcity of clay. Now a days, usage of fired – clay red bricks and fly ash bricks are common in the construction Industry. The paper industries produce huge amount of hypo sludge which are to be disposed of cost effectively and environment friendly. An effort is made to manufacture unfired pavement bricks with hypo sludge and silica fumes with cement. Good cement pavement blocks can be made in combination with mineral admixture like fly ash, quarry dust and additives materials like lime and gypsum. Hypo sludge (5%) and silica fumes (5%) are found to be optimum and the paver blocks, thus prepared produce adequate results. Curing is obtained in the cement paving blocks by adding self-curing agent such as polyethylene glycol PEG 400. The compressive tests for various specimen are conducted and the optimum value is obtained from the results. These paving blocks can also be used as precast masonry blocks.

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