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Experimental Study on Fully Replacement of River Sand by Bottom Ash and Lime Stone Filler

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Abstract : This paper presents the use of hydro sluiced bottom ash and lime stone filler as fine aggregate. part of a study investigating the structural characteristics of concrete using various combinations of bottom ash sand and lime stone filler as complete replacement for conventional river sand fine aggregate. The lime stone filler obtained from limestone quarries. The concrete are made using varying contents of bottom ash and lime stone filler as fine aggregate. The quantity of bottom ash was varied from 0% to 100% against lime stone filler at intervals of 25%. Samples of concrete (eg.cubes) are made in three different grades, namely: M15, M20 and M25. It was found that 0.55 water/cement ratio produced higher compressive strengths, tensile strength and better workability for M20 mix, proportion. Specifically compressive and tensile strength ranged from 21.06 -35.2 N/mm^2 and 10.06 -15.5 N/mm^2 for the mixes considered. These results compare favourably with those of conventional concrete. The concrete was found to be suitable for use as structural members for buildings and structures, where bottom ash content did not exceed 50%.
Key words: compressive strength, bottom ash sand, lime stone filler and tensile strength.

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