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An Experimental Investigation on High Volume Fly Ash Concrete by Replacing Fine Aggregate using Bottom Ash

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Abstract : The parameters like protection of natural resources, environmental consciousness are the present construction field requirements. Environmental pollution a major problem faced by mankind, mainly in the construction industry the production of portland cement causes the emission of pollutants that causes serious threat to the environment. Fly ash and bottom ash are waste products generated by coal burning power plants. It has been generally used for land filling. Fortunately several years back a discovery has been made that fly ash can be used as a partial replacement of cement in concrete. High Volume Fly Ash concrete system addresses all the major sustainability issues. It considerably saves cement and also prevents environmental pollution. The fly ash makes concrete more impermeable and denser as compared to Ordinary Portland Cement. Sand mining is also current problem faced by the construction industry in the present day. Bottom ash obtained from the coal burning industry can be replaced with bottom ash.This study reveals the strength properties of hardened concrete for M30 grade by partially replacing cement with fly ash at varying percentage (30% - 70%) and sand by bottom ash at varying percentage (10% - 30%). The mix design for M25 grade of concrete is arrived as per IS codes.

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