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An Experimental Investigation on Dynamic Modulus of Elasticity of Fly Ash Based Normal Strength Concrete

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Abstract : Use of industrial by-products such as Fly Ash (FA) as one of the raw materials used in Normal Strength Concrete is appropriate to deal with the sustainability of concrete and industrial growth. The present experimental investigation assesses the potential of FA in normal strength concrete for Industrial applications. The fine aggregate used in the investigation was natural river sand. The Ultrasonic Pulse Velocities (UPV) was determined at various ages varying from 1 day to 90 days of curing. The Fly Ash is used as partial replacement of Cement at the range varying from 10% to 35% by volume. The ultrasonic pulse velocities of Fly Ash based Normal Strength Concrete was lower for all mixtures at 1 day when compared to control mix concrete. However as the age of concrete increases the ultrasonic pulse velocities were appreciably improved for all the mixes. Empirical relationships between strength, UPV and Dynamic Elastic Modulus were proposed.

Keywords : Fly Ash, Compressive Strength, Ultra sonic Pulse Velocity and Dynamic Elastic Modulus.

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