INFLUENCE OF FLY ASH INCLUSION ON MICROSTRUCURE AND STRENGTH PROPERTIES OF CONCRETE

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ABSTRACT

This study was conducted to evaluate the effects of inclusion of fly ash on concrete microstructure and its mechanical performance. Air entrained plain portland cement concrete was proportioned to obtain design strength of 6000 psi at the 28-day age. Concrete mixtures were also proportioned to have various cement replacements in the range of 15 - 70% with an ASTM Class C fly ash. Microstructure of concrete specimens was studied by means of a computer simulation program as well as a scanning electron microscope. Mechanical properties of concrete such as compressive strength and splitting tensile strength were determined at various ages up to 91 days. The simulation results were compared to scanning electron microscopic investigations as well as strength properties of concrete.