BEHAVIOUR OF REINFORCED CONCRETE BEAM WITH SILICA FUME UNDER DYNAMIC LOADING

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Declaration:

I hereby declare that this report has not been submitted, either in the same or different form, to this or any other university for a degree, and except where reference is made to the work of others, it is believed to be original.

(RUDY TAWIE)

ABSTRACT

Behaviour of Reinforced Concrete Beam with
Silica Fume under Dynamic Loading

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Concrete mixes design to produce 42 N/mm^2 – 84 N/mm^2 in compressive strength are easily obtainable today with silica fume replacing a portion of the cement content. Such concretes with a design compressive strength exceeds 42 N/mm^2 may be defined as "High Strength Concrete". For several reasons, there has recently been a marked interest in the determination of the dynamic characteristics of structures and their response under dynamic loads and effect. Subjected to dynamic loading under sinusoidal wave pattern, a study has been carried out to make an experimental investigation on reinforced concrete beam (Grade 60 N/mm^2) incorporating silica fume replacing cement by weight of w/c ratio of 0.30, with respect to the serviceability and ultimate limits. A total of three specimens each with different silica fume proportion (8%, 12% and 16%) by weight of cement were cast and tested under the dynamic load. Parameters investigated include deflections, crack widths and crack lengths.

Keywords: High strength concrete, reinforced concrete beam, silica fume, dynamic loading, deflection, cracking.

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