

EFFECTIVENESS OF ULTRASONIC METHOD IN DETECTION OF CONCRETE DETERIORATION

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ABSTRACT

Tests were performed to evaluate the feasibility of using Ultrasonic Pulse Velocity Method (UPVM) in detecting defect and determining its depth during the early age concrete. Five reinforced concrete (RC) slabs grade 30 and 40 specimens at day 3, 7, 14 and 28 with a fabricated void at a known location were used. The results obtained were compared to determine the accuracy of the method hence the effectiveness of the method with different strength and as the concrete matures. This method detects defects in specimens during the early age. The accuracy varies with concrete strength and as the concrete mature. The test results indicate the method can be used to assess the in-situ properties of concrete or for quality control on site. The method showed better accuracy with stronger concrete detects defects with the accuracy ranging from 55.75-99.05% from day 3-28 (full strength) respectively.

Keywords: non-destructive testing, concrete, Ultrasonic Pulse Velocity Method, defects detection and accuracy

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