

Report on Behavior of Fresh Concrete During Vibration

Reported by ACI Committee 309



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This report covers the rheological and mechanical processes that take place during consolidation of fresh concrete. The first chapter presents the historical developments relative to consolidating concrete. The second chapter provides notations and definitions. The third chapter deals with the rheological behavior of concrete during consolidation and the associated mechanisms of dynamic compaction. The fourth chapter presents the principles of vibratory motion occurring during vibration, vibratory methods, and experimental test results. Continuing research in the field of concrete vibration, as evidenced by the extensive literature devoted to the subject, is addressed.

Keywords: admixtures; aggregates; aggregate shape and texture; aggregate size; amplitude; compacting; consolidation; damping; energy; fresh concrete; hardening; history; mechanical impedance; mixture proportioning; reviews; rheological properties; stability; vibrations; vibrators (machinery).

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