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The Past, Present And Future of Nondestructive Testing of Concrete and Concrete Structures

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This paper traces the past history of the development of nondestructive testing, reviews current practices such as resonant and pulse velocity methods, surface hardness methods including rebound, probe penetration, pull-out and break-off tests, maturity method, radioactive, electrical and chemical analysis methods, and briefly mentions the following recent advances: impact echo, short-pulse radar, infrared thermographic techniques, and acoustic emission methods.

There is a great potential in the concrete industry for nondestructive methods of testing concrete. Major fields where these methods could prove to be superior to traditional methods are determination of in-situ material conditions for quality assurance, forensic (problem trouble shooting) repair/rehabilitation investigations, quality control in the construction of structural members, both precast and cast-in-place, and monitoring strength development.