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Report on Nondestructive Test Methods for Evaluation of Concrete in Structures

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A review is presented of nondestructive test (NDT) methods for evaluating the condition of concrete and steel reinforcement in structures. Methods discussed include visual inspection, stress-wave, nuclear, measurement of fluid transport properties, magnetic and electrical, infrared thermography, and ground-penetrating radar. The principle of each method is discussed and the typical instrumentation described. Testing procedures are summarized and the data analysis methods explained. The advantages and limitations of the methods are highlighted. This report concludes with a discussion of planning a NDT program. General information is provided for those faced with the task of evaluating the condition of a concrete structure and who are considering the applicability of NDT methods to aid in that evaluation.

Keywords: covermeter; deep foundations; half-cell potential; infrared thermography; nondestructive testing; polarization resistance; radar; radiography; radiometry; stress-wave methods; transport properties; visual inspection.

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