

A Case Study of Assessment of Fire Affected Concrete Structure by NDT

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Abstract : The present paper is an attempt to perform various Non-Destructive Tests on concrete structure as NDT is gaining a wide importance in the branch of civil engineering these days. Various tests that are performed under NDT not only enable us to determine the strength of concrete structure, but also provide us in-hand information regarding the durability, in-situ properties of the concrete structure. Keeping these points in our mind, we have focused our views on performing a case study to show the comparison between the NDT test results performed on a particular concrete structure and another structure at the same site which is subjected to a continuous fire of say 48-72 hours. The mix design and concrete grade of both the structures were same before the one was affected by fire. The variations in the compressive strength, concrete quality and in-situ properties of the two structures have been discussed in this paper. NDT tests namely Ultrasonic Pulse Velocity Test, Rebound Hammer Test, Core-Cutter Test was performed at both the sites. The main objective of this research is to analyze the variations in the strength and quality of the concrete structure which is subjected to a high temperature fire and the one which isn't exposed to it.

Keywords : core-cutter test, non-destructive test, rebound hammer test, ultrasonic pulse velocity test

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