



THERMAL NON DESTRUCTIVE TESTING CHARACTERIZATION OF DELAMINATION AND STEEL REINFORCEMENTS IN A MORTAR STRUCTURE

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Abstract

Thermal nondestructive testing (TNDT) is a technique for obtaining surface temperature profiles on a structure, and subsequently relating this information to some imperfections within the structure. The tests of TNDT are generally based on the observation and the exploitation of a thermal phenomenon disrupted by the presence of an anomaly or heterogeneity. Indeed, an anomaly or a flaw inside the structure will generally alter the heat flow through the structure due to the difference in its heat transfer properties and those of the unflawed structure. If the heat flow pattern is sufficiently altered, a difference of temperature in the structure in the unflawed and the flawed regions is observed. The methods of analysis of these phenomena are based on the codes of numeric modelling using the method of the finite elements by help of commercial software. The simulations realized take into account the position of the defect in a mortar structure. With an aim of evaluating this technique and of validating our numerical modelling by the numeric code, we present an experiment based on the detection of delaminations (resistive defect) and then steel reinforcements (capacitive defect) in a structure of mortar.