

Strength Assessment of Clay Bricks using Porosity Dependent Techniques

Fouad M. Khalaf¹ and John G. Wilson²

Abstract:

By applying existing theories mainly used in measuring electrical properties of concrete, a test was devised to measure the electrical properties of clay bricks. The aim of the investigation is to show that the onset of saturation can be determined easily and accurately as the point when the brick's electrical resistance shows no significant change in value. At the point of saturation, the values of resistivity can be determined and related to the compressive strength of the brick. Four brick types, with different strengths and perforations, were tested in order to compare results and study relationships. The results of the present investigation suggest that clay bricks can easily be modelled as a simple circuit similar to concrete and relationships exist between the electrical and physical properties of bricks. The technique used in this investigation has possible applications as a non-destructive test (NDT) to assess compressive strength, rate of water absorption and permeability of clay bricks.

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DOI: 10.70803/001c.142313

¹ BSc, MSc, PhD Lecturer, Department of Civil and Transportation Engineering, Napier University, Edinburgh, Scotland, UK.

² BSc, PhD, MIEEE Associate Consultant, Department of Electrical, Electronic Engineering, Napier University, Edinburgh, Scotland, UK.