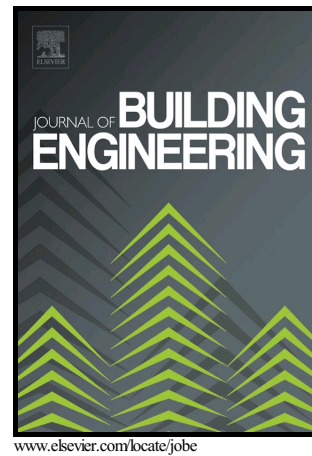


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Non-destructive characterization of ancient clay brick walls by indirect ultrasonic measurements

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Abstract

In this work, ultrasonic tests were carried out on the external walls of the Nossa Senhora do Rosário dos Pretos Church, an ancient masonry structure from the 18th century placed at Aracati, Brasil. The main aim of this research was to characterize the ultrasonic velocities of the external walls of the church, in view of further maintenance measures, as well to collect quantitative data on the state of conservation of the church. For that purpose, a methodology based on indirect ultrasonic measurements was developed and is presented in this paper. The results show that ultrasonic tests can be applied for characterizing wall homogeneity, offering useful information for control of maintenance or retrofitting measures.

Keywords: ultrasonic test, masonry structure, non-destructive characterization, heritage constructions, Nossa Senhora do Rosário dos Pretos Church;

1. Introduction

Currently, heritage construction characterization has been a subject of large interest worldwide, especially due to the necessity for further information on structural properties and its global behavior[1]–[3]. This way, some efforts had been done for make available the application of non-destructive testing (NDT) for supporting structural assessment of heritage constructions, as for instance, the employment of

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