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Timber in Buildings: Estimation of Some Properties using *Pilodyn*® and *Resistograph*®

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ABSTRACT

At the conservation and/or rehabilitation stage of a building the condition state of the timber structural elements strongly limits the actions to be adopted. A non-destructive survey of their state is therefore a frequent need. Due to their handling facility and the direct results obtained two inspection and diagnosis less-destructive or non-destructive tests (NDT) [Machado & Cruz, 1997] gain relevance in the *in situ* characterization of timber properties: the *Pilodyn*® and the *Resistograph*® methods.

This paper presents the experimental procedures and the results obtained to find a possible correlation between the results obtained with these test readings and some properties of timber. The results were correlated with the density and the compression strength of two different species of pine timber with different ages, frequently used in buildings in the Lisbon area in the two last centuries. Thus, the following test campaigns were performed in *Pinus sylvestris* samples with approximately 80 and 150 years and recent *Pinus pinaster* samples: i- density; ii - compressive strength; iii - *Pilodyn*® and *Resistograph*® readings.

Though further work is envisaged, a correlation was found between the timber properties and the values obtained with the non-destructive equipments used.

KEYWORDS

Pine timber, NDT, density, compression strength

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