

Accepted Manuscript

Infrared thermography for wood density estimation

Gamaliel López, Luis-Alfonso Basterra, Luis Acuña

PII: S1350-4495(17)30737-5

DOI: <https://doi.org/10.1016/j.infrared.2018.01.015>

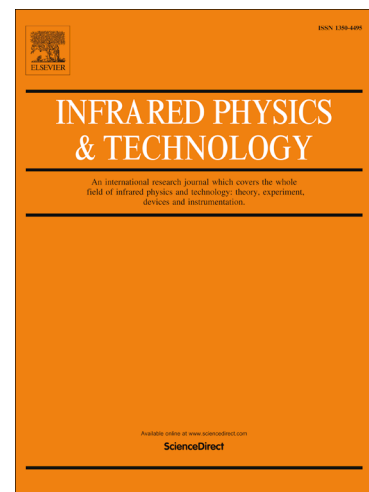
Reference: INFPHY 2473

To appear in: *Infrared Physics & Technology*

Received Date: 9 November 2017

Revised Date: 9 January 2018

Accepted Date: 11 January 2018



Please cite this article as: G. López, L-A. Basterra, L. Acuña, Infrared thermography for wood density estimation, *Infrared Physics & Technology* (2018), doi: <https://doi.org/10.1016/j.infrared.2018.01.015>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Infrared thermography for wood density estimation

Gamaliel López^{*}, Luis-Alfonso Basterra, Luis Acuña

*Research group of Timber Structures and Wood Technology, University of Valladolid,
Avenida de Salamanca, 18, 47014 Valladolid (Spain)*

* Corresponding author. Tel. +34 983 424 715. E-mail address: gama@arq.uva.es

Abstract

Infrared thermography (IRT) is becoming a commonly used technique to non-destructively inspect and evaluate wood structures. Based on the radiation emitted by all objects, this technique enables the remote visualization of the surface temperature without making contact using a thermographic device. The process of transforming radiant energy into temperature depends on many parameters, and interpreting the results is usually complicated. However, some works have analyzed the operation of IRT and expanded its applications, as found in the latest literature.

This work analyzes the effect of density on the thermodynamic behavior of timber to be determined by IRT. The cooling of various wood samples has been registered, and a statistical procedure that enables one to quantitatively estimate the density of timber has been designed. This procedure represents a new method to physically characterize this material.

Keywords: Timber structures; Non-destructive testing; Infrared thermography; Estimation; Density; Rehabilitation

Download English Version:

<https://daneshyari.com/en/article/8146021>

Download Persian Version:

<https://daneshyari.com/article/8146021>

[Daneshyari.com](https://daneshyari.com)