
Non-destructive Evaluation of construction materials using thermal and dielectric properties

Jinxia Hu*¹ and Zoubir-Mehdi Sbartai*¹

¹Université de Bordeaux (UB) – Institut de Mécanique et d'Ingénierie – 35, place Pey Berland - 33076 Bordeaux, France

Résumé

The in-situ determination of the thermal conductivity and dielectric properties of building materials is fundamental for solving problems related to building inspections and energy evaluations. However, the measurement is typically not conducted due to time-consuming methods and restrictive boundary conditions. Therefore, this project develops a new non-destructive testing approach to predict thermal conductivity by utilizing dielectric properties. With regard to this, the four wood materials, insulations, and concrete were tested in this work. Our study aims to establish a correlation between thermal conductivity and dielectric properties of some commonly adopted building materials.

Mots-Clés: Thermal conductivity, Relative dielectric constant, Non, destructive testing

*Intervenant