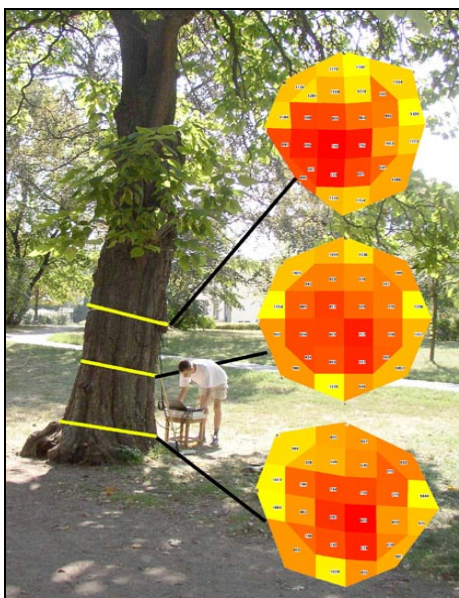


Course in Non-Destructive Testing of Wood

June, 13th – 16th 2005

ETS Ingenieros de Montes – ETS Arquitectura, UPM, Madrid



Prof. Dr. Ferenc Divos. Head of Nondestructive Testing of Wood Laboratory. Institute of Wood and Paper Technology. University of Western Hungary, Sopron.

IUFRO Organization: 5.02.01 Non-destructive evaluation on wood and wood-based materials. International Union of Forest Research Organizations)

Organizers:

Unidad Docente de Cálculo de Estructuras. Departamento de Estructuras (Structural Design Department). Escuela Técnica Superior de Arquitectura (Technical Superior School of Architecture). Universidad Politécnica de Madrid (Polytechnic University of Madrid).

Unidad Docente de Cálculo de Estructuras. Departamento de Construcción y Vías Rurales (Construction and Forest Roads Department). Escuela Técnica Superior de Ingenieros de Montes (Technical Superior School of Forestry Engineering). Universidad Politécnica de Madrid (Polytechnic University of Madrid).

Program:

June, 13th Monday. 16:00 h – 20:30 h (25 min: coffee break). Venue: Structures Department. ETSI de Montes.

- Registration and opening meeting. (15 min).
- Introduction to nondestructive evaluation and techniques. (30 min).
- Ultrasonic and stress wave propagation method. Basics and principles. Stress wave transmission time, velocity, attenuation and logarithmic decrement determination. (1h 45 min).
- Practical lecture: Evaluation of standing trees. (Fakopp 2D – Multi-channel Timer device). (1 h 30 min). Arboretum.

June, 14th Tuesday. 16:00 h – 20:30 h (25 min: coffee break). Venue: Timber Structures Laboratory. ETS de Arquitectura.

- Ultrasonic and stress wave propagation method. Field considerations and use of stress wave methods. Grading of structural timber and assessment in ancient structures. (2 h).
- Practical lecture: Evaluation of MOE dynamic. (Fakopp Microsecond timer device and oscilloscope). Evaluation of MOE by static bending test. (Bending test equipment). Results and discussion. (2 h).

June, 15th Wednesday. 16:00 h – 20:30 h (25 min: coffee break). Venue: Timber Structures Laboratory. ETS de Arquitectura.

- Stress wave. Vibrational methods. Basics and theoretical models. Frequency analysis. Longitudinal and transversal vibration of lumber. (2 h).
- Practical lecture: strength grading of structural timber. (FFT Analyser and PLG: Portable Lumber Grader equipment). (2 h).

June, 16th Thursday. 16:00 h – 19:30 h (25 min: coffee break). Venue: Timber Structures Laboratory. ETS de Arquitectura.

- Assessment of density. Methods: resistograph, Pilodyn, Screw withdrawal ... (1 h).
- Practical lecture: Evaluation of the residual strength of wooden members from an ancient structure using screw withdrawal resistance and stress wave. (Screw Withdrawal Force Meter and Fakopp Microsecond timer device). Evaluation of MOE by static bending test. (Bending test equipment). Results and discussion. (2 h).

Number of participants: maximum 25, accepted by inscription order. (UPM's Professors; PhD. Students and Wood Specialists).

Language: English.

Total duration: 15 hours.

Documentation: Copies of articles and papers dealing with Nondestructive Techniques.

Registration: Please make it according to the following steps:

- 1.- Contact by phone with Mrs. Cristina (91 336 65 16) to check if there is any available seat.
- 2.- Bank transfer payment: registration fee (160 euros)

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- 3.- Return the bank transfer receipt by fax (91 336 65 67) to Mrs. Cristina, including name, phone number, e-mail, course's title and data for the receipt.

Registration deadline: 16th may 2005.

Organizing Technical Committee:

Dr. Ferenc Divos. University of Western Hungary, Sopron.
Dr. Francisco Arriaga Martitegui. Universidad Politécnica de Madrid.
Dr. José Luis Fernández Cabo. Universidad Politécnica de Madrid.
Dr. Miguel Esteban Herrero. Universidad Politécnica de Madrid.
Guillermo Íñiguez González. Universidad Politécnica de Madrid.
