WOODEX. In the simplicity is the answer

Device for estimating the wood density

Contact information

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Technological Offers type

Technological solutions

Research and innovation areas

- Agriculture, Forestry, Natural Resources, Land Use and Blue Growth

ODS

Available from: 2020

Where?

Timber Construction

Keywords: | density | wood

Brief description of the technology solution and the added value it provides

Simple, intuitive, reliable and non-destructive device for testing the wood density, which is use in construction developed by the Research Group Building with Wood.

The developed solution is coupled to a commercial drill and it is lightweight and sturdy. It is improved the estimation of wood density use in construction over current methods over 20% obtaining correlation coefficients above 0.9. Simple starting and test methodology. Moreover, allows discover pathologies of biotic origin.

Description of the technological base

The device fits in the field of wood technology, specifically in inspection elements and wooden structures by non or semi- destructive methods.

Woodex is coupled to a commercial drill and extract a given volume of wood

This allows us to estimate the density of the wood piece tested by the ratio between its mass and volume of the hollow generated, and correlate with other physical and / or mechanical properties. Thus, the system relates the wood density of the extracted piece to the overall element.

This method improves the estimation of wood density obtaining correlation coefficients greater than 0.9 when the most current methods offer 0.6.

"Non-destructive system and testing methodology to estimate the wood density in a simple, fast and reliable way"

Market demands

Materials

- Estimation of physical and mechanical wood properties using in construction.
- Estimation of wood moisture.
- Methodology to estimate the density of the wood fast and reliable.
- Starting and simple test methodology
- Lightweight and inexpensive devices.
- Evaluation capacity of the wood phytosanitary condition

"Only knowing the true condition of the wood elements is the way to avoid the loss of our historical patrimony"

Competitive advantages

- Between 20 and 30% improvement in the estimation of the wood density placing.
- No prior identification of the type of wood to be tested is needed
- Simple starting and test methodology
  Estimation of low density (not overestimate the mechanical properties)
- Allows discover pathologies of biotic origin
- Allows estimate the wood moisture

Previous references

- Research group with extensive experience in the area.
- Participation and presentation of the solution in the International Nondestructive Testing and Evaluation of Wood Symposium Madison, WI – Sept 24 – 27, 2013

Intellectual property

- Patent granted in Spain [P201330890]

Development stage

- Concept
- R&D
- Lab Prototype
- **Industrial Prototype**
- Production

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