

References - Assessment of Existing Timber Structures and NDT

Publications of the Timber Construction Research Group from the Technical University of Madrid

Elaborated by:

Guillermo Íñiguez González

Daniel F. Llana

- International conference papers:

Esteban, M.; Arriaga, F.; Íñiguez, G. (2006)

Modeling of structural pathologies in king trusses for the refurbishment of ancient structures.

9th World Conference on Timber Engineering (WCTE)

Portland, Oregon, USA. 6 - 10 August 2006

Íñiguez, G.; Arriaga, F.; Bobadilla, I.; Esteban, M. (2008)

Grading by non-destructive techniques and assessment of the mechanical properties of large cross section coniferous sawn timber for structural use.

10th World Conference on Timber Engineering (WCTE)

Miyazaki, Japan 2 - 5 June 2008

Íñiguez, G.; Martínez, R.; Bobadilla, I.; Arriaga, F.; Esteban, M. (2009)

Mechanical Properties Assessment of Structural Coniferous Timber by means of Parallel and Perpendicular to the Grain Wave Velocity.

16th International Symposium on Nondestructive Testing and Evaluation of Wood

Beijing, China 12 - 14 October 2009

Pp. 79-84.

Arriaga, F.; Íñiguez, G.; Esteban, M.; Bobadilla, I. (2009)

Proposal of a Methodology for the Assessment of Existing Timber Structures in Spain.

16th International Symposium on Nondestructive Testing and Evaluation of Wood

Beijing, China 12 - 14 October 2009

Pp. 145-151.

Esteban, M.; Bobadilla, I.; Arriaga, F.; Íñiguez, G.; García, H. (2009)

NDT applied to estimate the Mechanical Properties of the Timber of an Ancient Structure in Valsaín, Segovia (Spain).

16th International Symposium on Nondestructive Testing and Evaluation of Wood

Beijing, China 12 - 14 October 2009

Pp. 152-157.

Íñiguez, G.; Arriaga, F.; Esteban, M.; Bobadilla, I.; González, C.; Martínez, R.D.

In situ non-destructive density estimation for the assessment of existing timber structures.

11th World Conference on Timber Engineering (WCTE)

Riva del Garda, Trento, Italia 20 - 24 June 2010

Martínez, R.D.; Bobadilla, I.; Íñiguez, G.; Arriaga, F.; Esteban, M.; Hermoso, E.

Assessment of decay in existing timber members by means of velocity perpendicular to the grain.

11th World Conference on Timber Engineering (WCTE)

Riva del Garda, Trento, Italia 20 - 24 June 2010

Esteban, M.; Arriaga, F.; Íñiguez, G.; Bobadilla, I. (2010)

Structural assessment and reinforcement of ancient timber trusses.

ICSA2010: International Conference on Structures and Architecture.

Guimarães, Portugal 21 - 23 July 2010

Bobadilla, I.; Martínez, R.D.; Calvo López, J.; Arriaga, F.; Íñiguez-González, G. (2013)
First steps in wood density estimation using a conventional drill.
18th International Nondestructive Testing and Evaluation of Wood Symposium
Madison, WI, USA 24 - 27 September 2013
Pp. 112 - 118.

Arriaga, F.; Esteban, M.; Íñiguez-González, G.; Bobadilla, I.; Llana, D.F.; González-Sanz, M. (2013)
Structural assessment of the timber structure of the Casa Grande building in the Real Cortijo de San Isidro, Aranjuez, Madrid (Spain).
18th International Nondestructive Testing and Evaluation of Wood Symposium
Madison, WI, USA 24 - 27 September 2013
Pp. 233 - 244.

Íñiguez-González, G.; Llana, D.F.; Montero, M.J.; Hermoso, E.; Esteban, M.; García de Ceca, J.L.; Bobadilla, I.; Mateo, R.; Arriaga, F. (2013)
Preliminary results of a structural timber grading procedure in Spain based on nondestructive techniques.
18th International Nondestructive Testing and Evaluation of Wood Symposium
Madison, WI, USA 24 - 27 September 2013
Pp. 386 - 395.

Arriaga, F.; Íñiguez-González, G; Llana, D.F.; Bobadilla, I.; Esteban, M. (2017)
Procedural considerations for the assessment of mechanical properties in existing timber structures.
20th International Nondestructive Testing and Evaluation of Wood Symposium
Madison, WI, USA 12 - 15 September 2017
Pp. 204 - 212.

Íñiguez-González, G; Arriaga, F.; Osuna-Sequera, C.; Esteban, M.; Ridley-Ellis, D. (2019)
Nondestructive Measurements in Reclaimed Timber from Existing Structures.
21st International Nondestructive Testing and Evaluation of Wood Symposium
Freiburg im Breisgau, BW, Germany, 24 - 27 September 2019
Pp. 462 - 472.

Arriaga, F.; Osuna-Sequera, C.; Esteban, M.; Íñiguez-González, G; Bobadilla, I. (2019)
Procedure for Estimating the Physical and Mechanical Properties of Existing Timber Structures,
Applied to an Historic Building in Cava De San Miguel, Madrid, Spain.
21st International Nondestructive Testing and Evaluation of Wood Symposium
Freiburg im Breisgau, BW, Germany, 24 - 27 September 2019
Pp. 473 – 480.

Arana-Fernández, M. de; Llana, D.F.; Nasiri, B.; Íñiguez-González, G.
Cascading potential for recovered wood from heavy timber frame typologies in pre-modern dwelling buildings in Madrid.
63rd International Convention of Society of Wood Science and Technology (SWST).
Portorož, Slovenia (online due to Covid-19) 13 - 15 July 2020
Pp. 16-27.

Llana, D.F.; Íñiguez-González, G.; Arana-Fernández, M. de; Uí Chúláin, C.; Harte, A.M. (2020)
Recovered wood as raw material for structural timber products. Characteristics, situation and study cases: Ireland and Spain.
63rd International Convention of Society of Wood Science and Technology (SWST).
Portorož, Slovenia (online due to Covid-19) 13 - 15 July 2020
Pp. 117-123

- Peer reviewed articles:

Arriaga, F.; Íñiguez, G.; Esteban, M.; Fernández-Golfín, J. I. (2006)
Structural Tali timber (*Erythrophleum ivorens* A. Chev., *Erythrophleum suaveolens* Brenan.):
Assessment of strength and stiffness properties using visual and ultrasonic methods.
Holz als Roh- und Werkstoff 64(5):357-362
DOI: 10.1007/s00107-006-0100-5

Arriaga, F.; Esteban, M.; Argüelles, A.; Bobadilla, I.; Íñiguez, G. (2007)
The effect of wanes on the bending strength of solid timber beams.
Materiales de Construcción 57(288):61-76

Esteban, M.; Arriaga, F.; Íñiguez, G.; Bobadilla, I.; Mateo, R. (2010)
The effect of fissures on the strength of structural timber.
Materiales de Construcción 60(299):115-132
DOI: 10.3989/mc.2010.48208

Arriaga, F.; Íñiguez-González, G.; Esteban, M.; Divos, F. (2012)
Vibration method for grading of large cross-section coniferous timber species.
Holzforschung; 66:381-387
DOI: 10.1515/HF.2011.167

Íñiguez-González, G.; Montón, J.; Arriaga, F.; Segués, E. (2015)
In-Situ Assessment of Structural Timber Density Using Non-Destructive and Semi-Destructive Testing.
BioResources 10(2):2256-2265
DOI: 10.15376/biores.10.2.2256-2265

Íñiguez-González, G.; Arriaga, F.; Esteban, M.; Llana, D.F. (2015)
Reference conditions and modification factors for the standardization of nondestructive variables used in the evaluation of existing timber structures.
Construction and Building Materials 101:1166-1171
DOI: 10.1016/j.conbuildmat.2015.05.128

Llana, D.F.; Íñiguez-González, G.; Martínez, R.D.; Arriaga, F. (2018)
Influence of timber moisture content on wave time-of-flight and longitudinal natural frequency in coniferous species for different instruments.
Holzforschung 72(5):405-411
DOI: 10.1515/hf-2017-0113

Llana, D.F.; Hermoso, E.; Bobadilla, I.; Íñiguez-González, G. (2018)
Influence of moisture content on the results of penetration and withdrawal resistance measurements on softwoods.
Holzforschung 72(7):549-555
DOI: 10.1515/hf-2017-0133

Llana, D.F.; Íñiguez-González, G.; Montón, J.; Arriaga, F. (2018)
In-situ density estimation by four nondestructive techniques on Norway spruce from built-in wood structures.
Holzforschung 72(10):871-879
DOI: 10.1515/hf-2018-0027

Bobadilla, I., Martínez, R.D., Esteban, M., Llana, D.F. (2018)
Estimation of wood density by core drilling technique.
Holzforschung 72(12):1051-1056.
DOI: 10.1515/hf-2018-0036

Villasante, A.; Íñiguez-González, G.; Puigdomenech, L. (2019)
Comparison of various multivariate models to estimate structural properties by means of non-destructive techniques (NDTs) in *Pinus sylvestris* L. timber.
Holzforschung 73(4):331-338

Osuna-Sequera, C., Llana, D.F., Esteban, M., Arriaga, F. (2019)
Improving density estimation in large cross-section timber from existing structures by increasing the number of non-destructive measurements.
Construction and Building Materials 211:199-206.
DOI: 10.1016/j.conbuildmat.2019.03.144

Osuna-Sequera, C.; Llana, D. F.; Íñiguez-González, G.; Arriaga, F. (2020)
The influence of cross-section variation on bending stiffness assessment in existing timber structures.
Engineering Structures 204:110082
DOI: <https://doi.org/10.1016/j.engstruct.2019.110082>

Llana, D. F.; Íñiguez-González, G.; Díez, M. R.; Arriaga, F. (2020)
Nondestructive testing used on timber in Spain: a literature review.
Maderas. Ciencia y tecnología 22(2):133-156
DOI: <http://dx.doi.org/10.4067/S0718-221X2020005000201>

Martínez, R.D., Balmori, J.A., Llana, D.F., Bobadilla, I. (2020)
Wood density determination by drilling chips extraction in ten softwood and hardwood species.
Forests 11(4):303.
DOI:10.3390/f11040383

Llana, D.F., Íñiguez-González, G., Esteban, M., Hermoso, E., Arriaga, F. (2020)
Timber moisture content adjustment factors for nondestructive testing (NDT): acoustic, vibration and probing techniques.
Holzforschung 74(9):817-827.
DOI: 10.1515/hf-2019-0187