Model Calibration of Wooden Strucuture Assemblies - Using EMA and FEA

https://research.thinkwood.com/en/permalink/catalogue1001

Author: Bolmsvik, Åsa
Linderholt, Andreas
Olsson, Jörgen

Year of Publication: 2014
Format: Conference Paper
Material: LVL (Laminated Veneer Lumber)
Application: Wood Building Systems
Topic: Acoustics and Vibration
Keywords: Finite Element Model
Experimental Modal Analysis
Impact Sound Transmission
Conference: World Conference on Timber Engineering
Research Status: Complete
Notes: August 10-14, 2014, Quebec City, Canada

Summary:

To predict and, when needed to fulfil regularizations or other requirements, lower the impact sound transmission in light weight buildings prior to building, dynamically representative calculation models are needed. The material properties of commonly used building components have a documented spread in literature. Therefore, to validate the junction models, the dynamics of the actual assembly components have to be known. Here, the dynamic properties of a number of component candidates are measured using hammer excited vibrational tests. The spread of the properties of the components are hereby gained. Some of the components are selected to build up wooden assemblies which are evaluated first when they are screwed together and later when they are screwed and glued together. The focus is here on achieving representative finite element models of the junctions between the building parts composing the assemblies.

Online Access: Free

Resource Link

http://schd.ws/hosted_files/wcte2014/00/ABS427_Bolmsvik_web.pdf