

Evaluation, Maintenance And Upgrading Of Wood Structures: A Guide And Commentary

Nondestructive Testing and Evaluation of Wood: A Worldwide Research Update

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Introduction

The field of nondestructive testing (NDT) and nondestructive evaluation (NDE) of materials is constantly evolving. This is especially true in the area of wood and fiber-based materials. For example, early research on NDT/NDE technologies for wood products focused on methods for assessing the performance characteristics of structural lumber in North America. The NDT techniques, equipment, and evaluation procedures that resulted from those efforts are now in widespread use. Currently, worldwide research and development efforts are underway to examine the potential use of a wide range of NDT technologies for evaluating wood and wood-based materials—from the assessment of standing trees to in-place structures.

The original impetus for research in NDT/NDE of wood was the need to provide methodologies for assessing wood-based materials and products so that more accurate decisions could be made about proper use. This remains the major driving force for NDT/NDE wood research, with two significant additional challenges. First, there is an increased emphasis around the world to address forest and ecosystem health issues. Utilization of woody biomass from widely varying growing conditions will play a key role in providing economical options for managing the health of these forests and ecosystems. Second, the marketplace has become increasingly global in nature. Shipments of raw materials and products between countries on different continents is now commonplace. Both of these challenges will require accurate, cost-effective NDT/NDE technologies.

The international forest products research community is responding to these driving forces by conducting NDT/NDE research to provide the technologies needed to address these challenges. This article presents a sample of the ongoing NDT/NDE research efforts being conducted in several areas of the world.

International Nondestructive Testing and Evaluation of Wood Symposium Series

In an effort to provide a forum for researchers, the international NDT/NDE research community sponsors a series of technical symposia for the exchange of technical information. These symposia are scheduled on a biannual basis at locations throughout the world.

The International Nondestructive Testing and Evaluation of Wood Symposium Series was initiated by Washington State University and the USDA Forest Products Laboratory (FPL). The first symposium was held at FPL in the fall of 1963, with proceedings produced and distributed in 1964. At the meeting nearly 100 scientists, engineers, and industry leaders discussed the possibilities of a wide range of scientific means for testing wood nondestructively.

The original goals of this series of symposia were to:

- provide a technical and scientific forum for researchers to present and exchange results from their latest research endeavors, and
- bring researchers and industry together in an attempt to bridge the gap between the results of the researchers' efforts and the utilization of those results by the wood industry.

Published proceedings from each symposia summarize the research and development efforts presented (Fig. 1). Fifteen symposia have been held to date, and the sixteenth is scheduled for May 11-13, 2009, in Beijing, P.R. China (Table 1). While the early symposia focused on basic NDE principles and lumber assessment procedures, the symposia now attracts researchers and industry representatives from throughout the world and represents the full spectrum of technical interests, from basic and applied science

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, English, Book, Illustrated edition: Evaluation, maintenance and upgrading of wood structures: a guide and commentary / prepared by the Subcommittee. Evaluation, Maintenance and Upgrading of Wood Structures: A Guide and Commentary. Front Cover. Alan D'Yarmett Freas. ASCE Publications, Jan 1, . Wood Structures, A Design Guide and Commentary, American Society of Civil Engineers, New York, Evaluation, Maintenance and Upgrading of Wood Structures: A Guide and Commentary. Download Evaluation Maintenance and Upgrading of Wood Structures A Guide and Commentary. Evaluation Maintenance and Upgrading of Wood Structures: A Guide and Commentary Alan D'Yarmett Freas. CHAPTER 1 INTRODUCTION* 1. 1 Purpose of the Publication** Any structure, regardless of the material from. Abstract. The Forest Products Laboratory is developing a comprehensive guideline for assessing the ASCE book Evaluation, Maintenance and Upgrading of Wood Structures: A Guide and Commentary (ASCE). This document does an. ASCE, Evaluation, Maintenance and Upgrading of Wood Structures, A Guide and Commentary, American Society of Civil Engineers, New York, New York. Chapter 8 in Guide for Mixing, Measuring, Transporting and Placing Evaluation, Maintenance and Upgrading of Wood Structures: A Guide and Commentary. Freas, A. et alii. Evaluation, maintenance and upgrading of wood structures - a guide and commentary. New York: American Society of Civil Engineers. to evaluate the structural performance and practical use of wooden beams repaired and retrofitted with composite system for repair of partially damaged wood girders by ?re. . to be very successful in upgrading ?exural strength of reinforced concrete tion (NDS) for Wood Construction e Commentary [22], ANSI/NfoPA. In Japan, the Guideline for Post-earthquake Damage Evaluation and reinforced concrete, steel, and wooden buildings. The damage to each structural member is inspected and classified into one of site, necessary rehabilitation actions such as repair and strengthening are determined. 5. Sketches and Comments. Evaluation, Maintenance and Upgrading of Wood Structures: A Guide and Commentary. New York: American Society of Civil Engineers. (). Guideline. Assessments of Existing Buildings and Designated Structures. Guideline .. Users of this guideline who have questions, comments or suggestions for future Evaluation, Maintenance and Upgrading of Wood Structures (ASCE). Structures. SEI/ASCE Guideline for Structural Condition and Commentary. Evaluation Maintenance and Upgrading Wood Structures manual to assist in the design of glued laminated timber bridges. Evaluation, maintenance, and upgrading of wood structures. Freas guide and commentary. maintenance issues for wood in a structure, including moisture stains, peeling . Equipment used for nondestructive evaluation can give much more information . Maintenance and Upgrading of Wood Structures: A Guide and Commentary. the Repair, Evaluation, Maintenance, and Rehabilitation (REMR) Research Program. Available from .. steel structures, and wood structures. "Guide for Durable Concrete," prepared by ACI Committee , was published in the .. crete is discussed with reference to theories of the enhancement of.

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