TechLine

Forest Products Laboratory

New Uses for Old Lumber

Since the beginning of the 20th century, more than 3 trillion board feet of lumber has been produced in the United States. Much of that lumber now resides in buildings and other structures that are made entirely or partially from wood. As these buildings age and are no longer used, a common way to dispose of them is demolition.

But these buildings contain an abundance of quality material that can be reused instead of landfilled. Reusing reclaimed lumber will ease harvesting pressure on our forests, reduce the volume of waste destined for landfills, and provide a new source of materials. For example, each year in the Portland, Oregon, metro area, an estimated 900,000 board feet of wood waste could be diverted from landfills and up to $1 million could be generated from lumber (and other materials) salvaged from homes that are slated for demolition.

Background

A grade stamp and the grading criteria and rules that stand behind it are critical elements in the trade and use of lumber products. The grade stamp on mill-produced lumber allows each piece to be individually sold at retail outlets, verifies its quality and adherence to grading agency rules, and allows its widespread acceptance by engineers, architects, and building officials at the building site. Engineering testing backs up the grading criteria, ensuring that lumber grades will satisfactorily perform for their intended uses.

Currently, no grading rules or standards specifically address the use of reclaimed lumber. So although this lumber resource exists, the only current market option is to sell the materials for uses that do not require a grade stamp. These uses are usually of low value and do not use the lumber to its full potential. Preliminary research shows that reclaimed lumber has the potential for reuse in structural applications, a higher value use. However, development of a grade stamp specific to reclaimed lumber is needed to broaden its market and reuse options.

Objectives

The goal of this research is to make reclaimed lumber a widely accepted building material. Researchers are working to establish grading rules, develop engineering property data and appropriate reuse options, and propose a grade stamp for reclaimed lumber.

Dismantling buildings slated for demolition can provide a source of quality building materials. FPL researchers are testing the mechanical properties of reclaimed lumber and working to develop a grade stamp for the material.

Approach

Researchers have taken samples of lumber of various sizes and species from military and civilian buildings. They are testing the lumber for characteristics such as strength and stiffness and determining what effects nail holes and other imperfections in the lumber have on its engineering properties. The resulting data will be used to create grading standards for reclaimed lumber and to identify appropriate reuse options for the material.

Expected Outcomes

This research project will result in

- a lumber grade description and quality measure for reclaimed lumber,
- a description of reclaimed lumber by grade,
- submission of a grade rule amendment to recognize reclaimed lumber and include it as part of the National Grading Rule, and
- a grade stamp specific to reclaimed lumber.

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