Beetle attack has little effect on flatwise bending strength of studs

FORESTRY INNOVATION INVESTMENT

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MOUNTAIN PINE BEETLE update

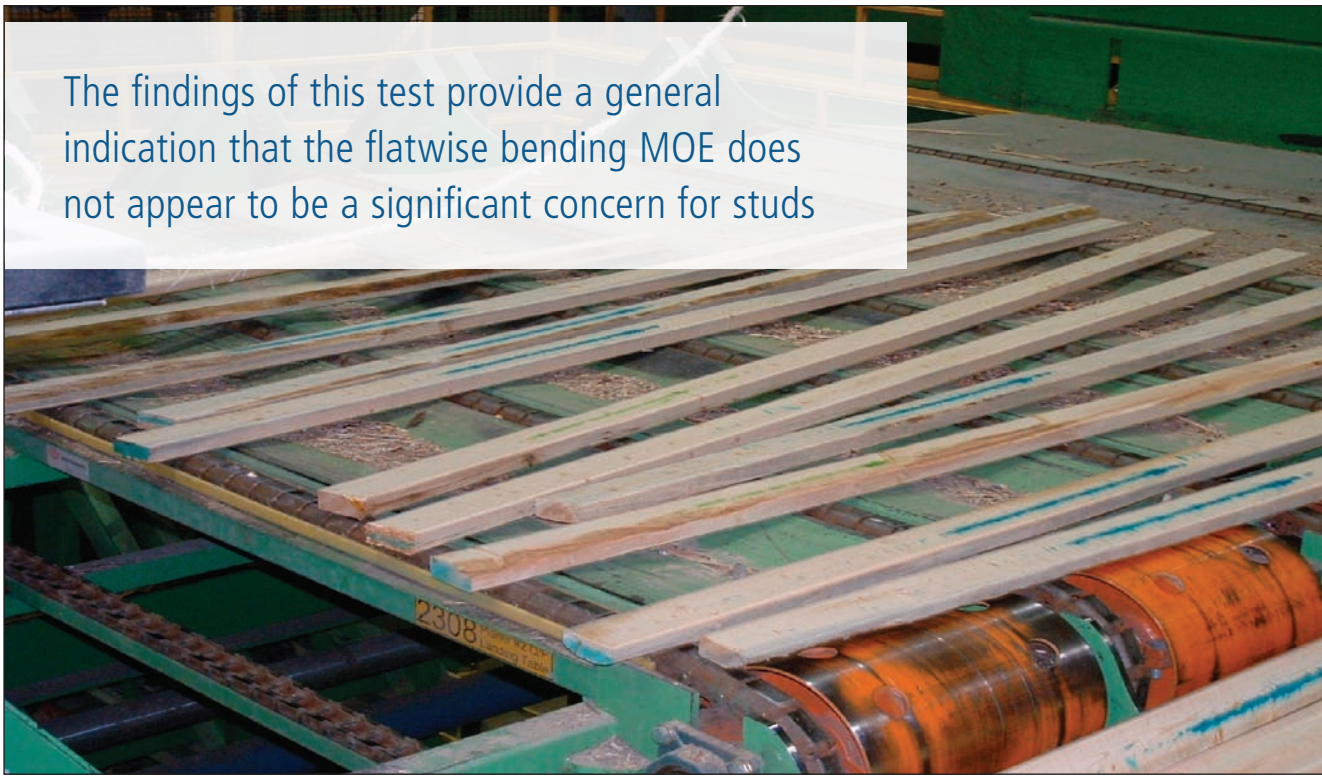
Flatwise bending strength varies very little between construction grade studs made from mountain pine beetle-damaged logs and those made from normal green logs, a preliminary study suggests.

The study, commissioned by Forestry Innovation Investment Ltd., compared the performance of stud lumber from green and grey-stage beetle-killed logs when subjected to machine stress rating (MSR). Lumber with MSR values is generally sold for a premium because the non-destructive testing helps demonstrate that strength properties meet the requirements of code authorities for certain applications.

The lack of significant variation is good news for sawmills, because grey-stage beetle-killed trees will be a major source of wood for many operators within five years.

Lumber used in the study was processed under controlled production conditions, kiln dried under regular commercial conditions and put through a planermill for finishing, grading and final tally by dimension.

Three packages of eight-foot 2x4 stud lumber from each source – beetle-killed and non-beetle-killed – were then subjected to MSR testing using a Metriguard HCLT 7200. This testing machine uses a number of wheels to exert pressure downward and then upward on the wider face of the wood as it moves through the machine. The wood



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bends, and the pressure is recorded at the centre of each bend and is extrapolated to indicate that piece's modulus of elasticity (MOE), or bending strength.

Average elasticity for the beetle-killed studs was recorded at 1.66 million pounds per square inch (psi), compared to an average of 1.73 million psi for non-beetle-killed lumber. When sorted into strength classes, the test lumber showed that:

- fewer pieces of beetle-killed lumber met the two highest strength classes;
- more pieces of beetle-killed lumber met the middle strength class;
- similar numbers of both batches met the lower strength class.

"The findings of this test provide a general indication that the flatwise bending MOE of the grey-stage MPB lumber does not appear to be a significant concern when manufactured into studs or short-length lumber," the report says. Results may not apply to all beetle-killed lumber, however, because length of lumber, source of log and other factors will likely affect MSR readings.

It should also be noted that this study did not include tests for edge bending stress or MOE quality control tests such as those required by the National Lumber Grading Association special products standard for machine graded lumber.

FOR THE FULL REPORT GO TO WWW.BCFII.CA/MPB/ AND DOWNLOAD THE REPORT "MPB-07-002: COMPARING THE FLATWISE MODULUS OF ELASTICITY OF GREEN LODGEPOLE PINE LUMBER & GREY-STAGE DRY MPB LUMBER."

Forestry Innovation Investment is a British Columbia government corporation investing in initiatives to help market BC forest products and promotes our sustainable forest practices to the world. FII's Mountain Pine Beetle Program supports the government's Mountain Pine Beetle Action Plan and its objective to maximize the economic value of mountain pine beetle wood. FII does this through marketing activities and research into new products and manufacturing processes for mountain pine beetle wood.

For more information, go to www.bcfii.ca or contact

Michael Loseth
Vice-President International Marketing
(604) 685-7507

Forestry Innovation Investment