



A pressing problem finds new answers

FORESTRY INNOVATION INVESTMENT

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New pressing technology could help plywood and laminated veneer lumber (LVL) producers remain competitive despite having to cope with wood killed by mountain pine beetle.

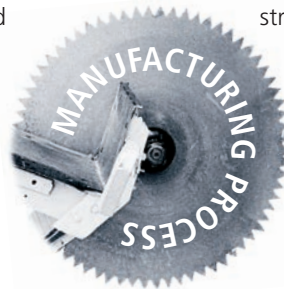
Researchers note that the hot pressing system is critical to the cost and quality of the end product at the best of times, and both parameters tend to be quite variable when the feedstock includes different species. Add in mountain pine beetle wood and pressing times can rise by as much as 10%, bringing a range of additional cost and technical control issues.

FPIinnovations - Forintek tackled the challenge by developing a new hot pressing method. Preliminary pilot plant

tests successfully integrated pressure and thickness control in one pressing cycle, reducing pressing time and end-product defects.

In the first stage of the process, a higher platen pressure speeds heat transfer and temperature rise. Once the panel reaches the target thickness, the temperature keeps rising for internal glue curing, while the platen pressure automatically drops with stress relaxation. Gases are more easily released, helping reduce blisters and blows when the press opens. Tests showed no negative effect on glue bond quality or product stiffness and strength.

Researchers say that compared to the conventional pressing method with a



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Uppodate
MOUNTAIN PINE BEETLE

constant pressure control, the new method is less sensitive to variations of species, veneer thickness, moisture content and density - leading to more uniform panel qualities. This is important to manufacturers working with mountain pine beetle wood, which is more dense than typical spruce-pine-fir feedstock.

For the tests, a B.C. plywood mill sorted, graded and rated 2,000 cubic metres of beetle-killed wood. Forintek's composites pilot plant used this material to produce batches of plywood and LVL.

For the LVL, platen pressures of 250 to 350 psi were used on beetle-killed veneer, compared to the range of 175 to 300 psi in conventional processing. Pressing

times were reduced, and finished panel thickness was closer to the target than in the conventional pressing system, especially with drier (9%) wood.

In the plywood tests, the new system reduced pressing time by 9-15% and reduced thickness variation by more than 45%. In strength tests the failure rate under the new system was 87%, compared to 91% using conventional pressing.

Forintek also tested the new system for use with Douglas fir.

From pilot plant tests, full-size tests and mill trials, researchers concluded that the new system can significantly improve thickness uniformity and other qualities, and reduce pressing times by between 5 and 15%. A plywood mill producing 100 million square feet (3/8" basis) annually, with one 40-opening press, could perhaps save up to \$450,000 a year. Researchers say further trials should be conducted to fully quantify the business benefits to LVL manufacturers.

FOR THE FULL REPORT GO TO WWW.BCFII.CA/MPB/
AND DOWNLOAD THE REPORT "MPB-07-015:
IMPROVING PRODUCTIVITY USING NEW
VENEER PRESSING METHOD"



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

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