



Kiln study could help operators with small community kilns

FORESTRY INNOVATION INVESTMENT

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MOUNTAIN PINE BEETLE

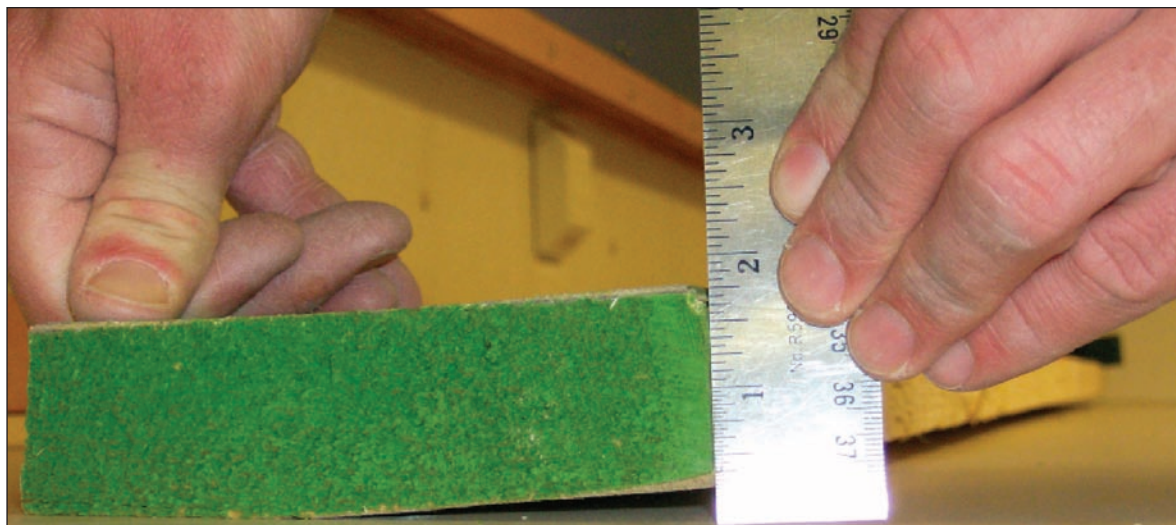
Careful attention to kiln-drying could help smaller sawmills process mountain pine beetle-attacked wood for some lucrative value-added products, researchers say.

A small-scale study done at the British Columbia Institute of Technology (BCIT) identifies some issues and solutions relating to kiln-drying this wood, with an eye to helping smaller salvage operations and mills such as those operated by First Nations communities.

Some manufacturers in British Columbia have already started making panels, flooring and furniture components from beetle-killed wood in an effort to diversify away from a well-supplied

construction lumber market. Kiln drying is critical to achieving the lumber grades required in these sectors, however, the lumber must be dried to below 10% before it can be processed.

The BCIT study dried 1,120 2"x6" boards. They were a spruce-pine-fir mix, but the largest proportion, or 80%, consisted of lodgepole pine. The wood came from an area under a heavy mountain pine beetle infestation. Researchers developed a test design that could be replicated by small community operations wishing to process beetle-attacked wood. Their aim was to develop optimized drying schedules for flooring and furniture grades, while minimizing degrade and energy costs.



More testing of kiln schedules is needed to minimize the effects of twist

One test load of 10,368 board feet was placed in a small BCIT proto-type heat-and-vent type of kiln using hot water heat from a natural gas boiler. The kiln could also be heated with a wood-burning boiler. Average beginning moisture content of the boards averaged 34.8%. The test pieces were dried to the required 10% or less, then inspected against pine furniture grade rules.

More than 70% of the dried boards met the 2 and better grade under NLGA (National Lumber Grading Association) rules. Bluestain was considered a natural characteristic, rather than a defect.

FOR THE FULL REPORT GO TO WWW.BCFII.CA/MPB/
AND DOWNLOAD THE REPORT "MPB-07-023:
COMMUNITY KILN DRYING OF MPB LUMBER
FOR VALUE-ADDED PRODUCTS."

Surface checking in green lumber was quite significant (affecting more than 20% of all boards before drying), most likely because of the lower initial moisture content of beetle-attacked boards. After kiln drying, surface checking increased another 17 per cent. The research report suggests a milder kiln schedule could be used in the first stage of drying to offset this challenge.

Another problem with the test charge was twist, which averaged more than half an inch in the boards affected. It is suggested that more kiln schedules be tested to minimize this effect.

The initial moisture content is one of the most critical factors in selecting kiln schedules and determining drying conditions. Therefore it was strongly recommended that green lumber be sorted by moisture content range, such as below and above 30%. Small sawmills that don't have an inline moisture meter should use a handheld metering device instead.



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

