

## BENEFITS OF FEEDING LUMBER THE RIGHT WAY UP INTO THE PLANER

Forintek has performed a planing mill study which demonstrates that grade recovery and general lumber appearance can be improved significantly if lumber is fed into the planer wany face up and with minimal depth of cut of the bottom head.

In-plant observations showed that lumber is frequently fed into the planer wany face up or down in a random fashion. Operators often have better or no control over face orientation because feed speed is high, there are too many pieces on the infeed table, or space is limited. The bottom cutterhead is usually set to a slightly smaller depth of cut than the top cutterhead, but operators frequently do not know the exact depth of cut of the bottom head. Let us take as an example a piece of dry lumber with a rough thickness of 1.670" (final target thickness: 1.500"), and the bottom head set to a depth of cut of 0.070". If the wany face is fed facing down, the planer will remove more material (0.100" instead of 0.070") from the better face than from the wany face! Obviously, this practice leads to reduced grade recovery.

To address this problem, Forintek undertook a study on the effect of face orientation prior to planing. The purpose of the study was to compare current planer mill performance (**normal** mode) with an **optimized** mode. In the **normal** production mode, lumber was fed wany face up (normal face-up) or wany face down (normal face-down), and bottom depth of cut was slightly smaller than top depth of cut.

In the **optimized** mode, the depth of cut of the bottom head was minimized, and the lumber was planed wany face up. This provided for a lighter depth

of cut on the better face, and a heavier one on the wany face, which resulted in an increased amount of wane-free wood. Other significant benefits were also possible, such as improvements in grade recovery, better appearance of the lumber, reduced target sizes (improved lumber and chip recovery), and potentially higher MSR yield because of lumber with less wane. The study was performed in a stud mill in the Abitibi region and in a dimension mill in the Saguenay-Lac St-Jean region.

Under NLGA wane rules, potential gains of **\$4.99/MFBM** were obtained in the stud mill for 2"x3" lumber, **\$9.72** for 2"x4", and **\$1.38** for 2"x6". In the dimension mill, the gains were **\$4.38** for 2"x3", **\$11.54** for 2"x4", and **\$0.33** for 2"x6". Only 7-ft and 8-ft lumber lengths were included in the study. Knots, decay and other such defects were not taken into consideration. Grade was based exclusively on the presence of wane.

The appearance of the lumber obtained in the optimized mode was superior to that of the normally planed lumber. It is worth noting however, that better results were obtained from the "normal face-up mode" than from the "normal face-down mode". For the stud mill, the average gain in wane-free wood on the edges was **0.103" for the optimized mode, as compared to the normal mode**, which represents an **87 per cent** increase in wane-free surface area.



"Technote" is designed to keep members and supporters informed of the latest progress in wood products R&D at Forintek.

Eastern Division  
319, rue Franquet, Sainte-Foy, Québec G1P 4R4  
Tel: (418) 659-2647  
Fax: (418) 659-2922

Western Division  
2665 East Mall, Vancouver, B.C. V6T 1W5  
Tel: (604) 224-3221  
Fax: (604) 222-5690

On the faces, the average gain was **0.355"**, i.e., a **79 per cent** increase. For the dimension lumber mill, the gains were **0.074"** (**+32 per cent**) and **0.110"** (**+34 per cent**) respectively on edges and faces. When the two mills are combined, going from the normal to the optimized mode translates into a gain of **0.089"** (**+60 per cent**) on **edges**, and **0.233"** (**+57 per cent**) on **faces**.

The study confirms that, by setting the bottom cutterhead for a reduced depth of cut, and feeding lumber into the planer with the wany face up, it is possible to increase the grade recovery, improve product appearance, and reduce lumber target sizes.

Under current economic conditions, where the resource is increasingly costly and the markets more demanding, value recovery and product appearance are two major factors.

## Report Available

The report entitled "**Benefits of feeding lumber the right way up into the planer**" is available to interested Forintek members and supporters by contacting:

Marielle Martel, publications

Tel: (418) 659-2647

Fax: (418) 659-2922

E-mail: [marielle.martel@qc.forintek.ca](mailto:marielle.martel@qc.forintek.ca)

## For more information on this work please contact:

Benoît Laganière, Mechanical Engineering  
Lumber Manufacturing Technology

Tel: (418) 659-2647

Fax: (418) 659-2922

E-mail: [benoit.laganiere@qc.forintek.ca](mailto:benoit.laganiere@qc.forintek.ca)

or

Yvon Corneau, Group Leader  
Lumber Manufacturing Technology

Tel: (418) 659-2647

Fax: (418) 659-2922

E-mail: [yvon.corneau@qc.forintek.ca](mailto:yvon.corneau@qc.forintek.ca)

Forintek Canada Corp. would like to thank its industry members, Natural Resources Canada (Canadian Forest Service), and the Provinces of British Columbia, Alberta, Saskatchewan, Québec, Nova Scotia and New Brunswick, for their guidance and financial support for this research.