

# Computer-controlled machine makes post-and-beam construction a snap

BY GERRY BELLETT  
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**EDUCATION** | UBC's recently created Timber Building Research Group has got its hands on the latest power tool to hit the market — a computer-controlled, high-precision gizmo that can saw, drill and notch timber quicker than a gang of carpenters.

The \$450,000 Hundegger K2 Timber Processing Centre — on loan from its German manufacturer — is the first machine of its kind to be installed in a university, said Iain MacDonald, associate director of the Centre for Advanced Wood Processing.

"For hundreds of years, post-and-beam construction has needed skilled carpenters to do all the notching and joinery by hand. It's very labour-intensive," said MacDonald.

"In this machine you feed in software and the machine automatically generates parts. It dramatically speeds up the process, increasing efficiency and quality control," he said.

The machine will be used for teaching

and by researchers developing new building technologies.

MacDonald said research projects will also involve collaboration with BCIT and the Emily Carr Institute of Art and Design.

Such machines have been entering B.C. for the past three years and a number of companies, such as Penticton's Structurlam, have spent as much as \$1.5 million on more powerful versions.

Structurlam's president Mark Ruffiange bought a K2 three years ago to use in manufacturing laminate beams used in construction of commercial buildings such as school gyms and shopping centres. The company made the beams used in the Brentwood Skytrain station.

"Our business was rapidly expanding but we can't find people who are skilled enough to cut joints with the kind of quality and precision that's needed. We have carpenters with 25 years' experience who can do it, but they are hard to find," said Ruffiange.

Two years ago Ruffiange bought the French-designed and more powerful Creno Five Axis for processing beams.

Ruffiange said computer-controlled wood-processing machines were primarily designed for the timber-frame housing sector, the expensive wood-fabricated homes whose popularity is soaring in North America and in such places as Japan.

"In the U.S. the timber-framed home business is worth \$1 billion a year," said Ruffiange.

Given that his company had sophisticated wood-cutting machines, he decided to enter the home-building business and formed a partnership with the Oyama Forest Products lumber mill.

Using 3D computer technology, the company can now design a virtual building then transfer the data to the Creno Five and have the components manufactured automatically.

"Before that we'd have to do the drawings by hand and have people cut the components by hand on the shop floor," he said.

"We've only been going about a year, but we've done about 20 homes. They range in price from \$300,000 to \$2 million," he said.



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The \$450,000 Hundegger K2 Timber Processing Centre drastically reduces the time to construct a post-and-beam building.