

Driving innovation in the advanced wood products industry

To compete in today's global marketplace Canadian companies need to excel in business and manufacturing innovation. In the wood products sector, studies by researchers such as Oregon State University's Eric Hansen have found that there is considerable room for improvement in all aspects of innovativeness, but particularly in terms of innovation and development of new products. One of the mandates of the Centre for Advanced Wood Processing (CAWP) in the Department of Wood Science is to assist Canadian advanced wood products companies to develop new products or improve existing products.

Our value-added wood firms, like many manufacturers throughout the developed world, must act urgently to combat price competition, particularly from offshore manufacturers with low labour and regulatory compliance costs. We assist these firms in differentiat-

ing product offerings based upon unique innovation in aesthetic or performance attributes which allows them to shift the focus away from price. One innovation example is building products – previously thought of as solely commodity items, these have undergone a transformation in recent years and are now engineered to offer specific technical performance or “environmental attributes”. Examples include computer designed and manufactured timber frame structures and engineered wood products.

Our CAWP lab has the computer-aided-design and manufacturing software and CNC manufacturing machines that offer a wealth of new opportunities for creating innovative products and shortening the product development cycle. We are building on our experience in designing and building the Olympic podiums and medal trays in collaboration with many

supporters. CAWP is fortunate to receive generous in-kind support from a number of technology companies, which has helped to ensure that its computer lab and manufacturing spaces are endowed with world-class equipment. The technical work is typically carried out by CAWP staff and faculty members in the Department of Wood Science, though on occasion other UBC experts and external associates are called in to assist.

Canada's value-added wood manufacturers need a means to access affordably-priced product design and prototyping support services. The Business Innovation Partnership (BIP), an initiative funded by Forestry Innovation Investment and delivered by BC Wood Specialities Group, CAWP, and FPIInnovation provides these means. CAWP's main role in this partnership is to operate a product development service that works directly with BC companies on the design, engineering, prototyping, and testing of new value-added products. Since July 2009 CAWP has carried out 16 projects with manufacturers of furniture, cabinets, windows and doors, panelised housing, and engineered wood products. The services provided to these companies have been varied, from testing wood finishes and examining the machining properties of thermally-modified lumber to designing a mechanical press for a new laminated timber beam product. Projects have ranged from a few hundred dollars in value to



Andrew Pershin applying a non-toxic finish on furniture built for the 2010 Olympics



CAWP High-Head Lab

more than \$20,000, and 50% of project costs are covered by provincial funding. Industry response to the program has been highly favourable. The needs of the company are linked with the expertise of Faculty researchers, fulfilling one of CAWP's mandates to link advanced wood processors with the research (ie problem solving) community at UBC.

One company used this program for four projects that developed a complex panelised home product utilising a digital design and fabrication process. Project

planning, plant layout, and onsite training and education are leading to a new greenfield factory in BC that will employ 30-40 people producing high quality wood housing. The owner stated "the ability to secure funding and technical support for this year's product development activities through the BIP company-specific project program has been pivotal in convincing our investors to move forward with these plans". Another project explored the production of an engineered structural beam made from waste material making

members for solid timber frame construction; turning waste into a high value product. This patented project is ongoing. A third example was work to fine tune a new standard furniture line utilizing five-axis CNC technology. Another furniture manufacturer stated that "as a start-up business owner in the furniture industry BIP and CAWP represents an incredibly useful source of knowledge and support". These are all BC-based product innovations to help expand the value and employment opportunities in advanced wood processing using the facilities and knowledge from CAWP at UBC.

The BIP program is still new, and the benefits to the advanced wood manufacturing businesses in BC will continue to grow as it becomes better known among the existing and new wood entrepreneurs in BC.

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Wall-mounted light created by WPP graduate Andrew Pershin using 3D modeling software and CNC technology