




Canadian Innovation in Bio-materials

The newly formed Bio-Pathways Partnership Network, facilitated by FPAC and led by industry, provides a forum for member companies to meet, partner on initiatives of common benefit, and exchange knowledge and contacts.

To learn more visit:

fpac.ca/bio-pathways-partnership

 @BioPathPartner

 Bio-pathways Partnership Network

 Forest Products Association of Canada
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 Forest Products Association of Canada

Canada's forest products industry has a long-term commitment to innovation, helping it deliver on a triple bottom line. The industry's business model is evolving to include value-added wood products that provide durable and environmentally sustainable bio-based solutions throughout the value chain. It is producing new, cost-competitive composites, polymers, and other bio-materials that will "green" manufacturing processes in industrial sectors as diverse as automotive, plastics, and packaging.

INDUSTRY TRANSFORMATION LEADS TO A WEALTH OF OPPORTUNITY

High-value solid wood products form the cornerstone of a competitive Canadian forest products sector. Moving forward, the Canadian forest products industry will focus on product and business model innovation as well as new partnerships in the supply chain. Developing new markets allows the sector to engage in exciting new opportunities in the bio-materials domain.

GREAT MARKET POTENTIAL

The export value of wood products in 2010 was more than \$26 billion. Expanding the diversity of wood-based products to include specialty materials, such as engineered wood and wood plastic decking, will enhance the economic performance of Canada's forest products sector by opening new opportunities in global markets. Cross-laminated timber,

for example, could help fill the large demand for fast building systems in the mid-rise construction industry, which is estimated to be 70 to 200 million square feet of floor area per year.

SUPPORT FOR INDUSTRY INNOVATION

The Government of Canada and several provincial governments have recognized the economic potential for new bio-materials, and have developed funding programs (e.g., Investments in Forest Industry Transformation and TT-PSD [Transformative Technologies Pilot Scale Demonstration] program and initiatives to encourage deployment and commercialization of these technologies.

Canada is also home to outstanding research and educational institutions (e.g., the National Research Council's Industrial Materials Institute and Institute of Nanotechnology, the Bioproducts Discovery and Development Centre at the University of Guelph, and the Centre for BioComposites and Biomaterial Processing at the University of Toronto), as well as several virtual bio-material networks under the Natural Sciences and Engineering Research Council's Forest Sector R&D Initiative (e.g., Strategic Network on Innovative Wood Products and Building Systems, the Biomaterials and Chemical Strategic Network, and the Green Fibre Network). These institutions provide critical services, research, and support to Canada's biotech industries, including the forest products sector.

**DEMONSTRATED SUCCESSES:
FROM CONCEPT TO
COMMERCIALIZATION**

There are numerous small-market applications for bio-materials and several large-scale initiatives that are demonstrating promising returns and attracting interest both domestically and internationally. These include:

- » GreenCore Composites, with financial backing from the GrowthWorks Commercialization Fund, Tembec Industries, the Sustainable Chemistry Alliance, and other partners. They have developed wood-fibre-reinforced thermoplastic composites that can replace glass or other fibres in structural and semi-structural applications to enhance sustainability and reduce both energy costs and carbon dioxide output.
- » Les Chantiers Chibougamau recently received \$5 million from the Fond de solidarité (FTQ) to build a new cross-laminated timber plant. The facility, which will be the largest CLT plant in the world, will allow the company to boost its production capacity to the equivalent of 50 percent of all the facilities in Europe.
- » Canfor Pulp recently received funding from the TT- PSD Program and the B.C. Ministry of Forests, Lands, and Natural Resource Operations to improve pulp quality at its northern bleached softwood kraft plant in Prince George, B.C. The funding will be used to purchase and install infrared sensors that will scan wood chips for moisture, density, and species; scanning equipment that will take readings during the pulp manufacturing process; and cameras that will provide real-time information on dirt and defects of finished pulp.
- » Tembec, with financial support from the federal TT-PSD is constructing a pilot plant

for the development of its Next Generation Sustainable Fibre (Next Gen). The new wood fibre composite will be used to replace creosote-soaked railway ties, with other potential applications for land and marine transportation infrastructure, electrical energy generation, and transmission infrastructures.

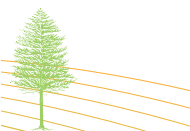
- » The AV Group successfully expanded its hardwood paper grade pulp plant in Nackawic, N.B. to include the production of dissolving pulp, the main raw material used in the manufacture of viscose staple fibre (rayon). The AV Nackawic operation is producing 190,000 tonnes of high-quality dissolving pulp, primarily for consumption in Aditya Birla (AV's parent company) viscose plants in India, Thailand, Indonesia, and China.

Up to six times lighter than concrete and with excellent carbon sequestration, cross-laminated timber (CLT) is a cost-competitive wood-based solution for certain building types that currently use concrete, masonry, and steel (e.g., schools, health care facilities, public buildings, commercial buildings, and multi-family housing).

**PLATFORM FOR MUTUALLY
BENEFICIAL PARTNERSHIPS**

New, innovative wood products and building systems have positioned Canada's forest products industry for significant growth. Strategic partnerships with traditional and non-traditional players will further expand the industry's reach into new and emerging markets both in Canada and abroad.

With access to world-class R&D, global partnerships, and anticipated returns on investment in bio-materials and processes, the time is right to support and partner with Canada's forest products sector.



CANADA'S ENVIRONMENTAL ADVANTAGE

Canada is seen as the world's most environmentally advanced supplier of forest products because it is committed to sustainable forest management and abides by forestry regulations and laws that are among the most stringent in the world. Members of the Forest Products Association of Canada (FPAC) adhere to strict environmental principles: harvest legally, regenerate harvested lands promptly, reduce waste, promote paper recovery and recycling, reduce greenhouse gases, and remain open to public scrutiny. All FPAC members are third-party certified under one, or more, internationally recognized standard for good forest management – Canadian Standards Association (CSA), the Forest Stewardship Council (FSC), Programme for the Endorsement of Forest Certification Standards (PEFC), and/or the Sustainable Forestry Initiative (SFI).

Through innovation, agility, and customer alignment, Canada's forest products industry is filling the niche for value-added bio-materials, such as intelligent paper and engineered wood products.

