

A photograph of a modern living room interior. It features a large, dark grey sectional sofa with a matching ottoman, a round coffee table, and a floor lamp. The room has large windows and a staircase in the background.

NSERC/CANLAK INDUSTRIAL RESEARCH CHAIR IN FINISHES FOR INTERIOR WOOD PRODUCTS

Faculty of Forestry, Geography and Geomatics

MISSION

The mission of the NSERC/Canlak Industrial Research Chair in Finishes for Interior Wood Products is to increase the use of interior appearance wood products by developing finishing products or densification processes that improve the performance of these products or give them new attributes.

CHAIR CREATION: April 2017

This research chair is part of Université Laval's Program for the Advancement of Innovation, Research, and Education (PAIRE), which aims to create a stimulating research environment for innovation, ingenuity, and creativity on the part of faculty members.

BACKGROUND

Interior wood products help reduce greenhouse gases (GHG) and improve comfort for building occupants, but these do not appear to be sufficiently compelling reasons for more wood to be used in indoor environments, particularly non-residential buildings. The main reason is that certain wood products do not last, are unsuitable for strict hygiene conditions, and are not fire resistant. The purpose of the new Chair is to spur the development of interior wood products that meet professional construction requirements for mechanical performance, fire resistance, and appearance. To reach ambitious performance and appearance objectives, a holistic approach to wood treatment will be used. The research program will examine both finishes and densification and will touch on chemistry, wood science, and mechanical and industrial engineering. The economic and environmental viability of the products developed will be considered, to ensure the solutions are appropriate and sustainable.

HOLDER

Véronique Landry, an associate professor in the Wood and Forest Sciences Department at Université Laval and a graduate of the Chemistry Department (bachelor's and master's) and the Department of Wood and Forest Sciences, has been researching wood finishes for over 13 years. With ten years as an industrial researcher to her credit, she is well respected in the industry. Throughout her career she has been active in academic research, landing numerous grants and supervising numerous master's and doctoral students. Ms. Landry is a recognized expert in wood finishing products and densification. Her main research interests are nanocomposite and stimuli-sensitive coatings and wood impregnation systems with a low environmental impact.





OBJECTIVES

The NSERC/Canlak Industrial Research Chair in Finishes for Interior Wood Products seeks to position Canada as a world leader in wood finishes and in the densification of appearance products for interiors by establishing an industrial consortium covering the entire value chain, from raw material to end user, and seeking to implement innovative practices and solutions.

The research program's main objective is to develop finishing strategies that will boost the use of wood products

by improving the appearance, mechanical performance, and fire rating of the treated products, using innovative methods based on the chemistry of smart materials, including specific projects for:

- > develop economically and technically viable impregnation systems for achieving harder wood surfaces, and
- > assess and implement innovative impregnation and polymerization systems that feature low environmental impact.

PARTNERS

The Chair is financed by NSERC and partners from the Canadian wood products and finishes industry. The actively involved partners in the program are leading manufacturers of raw materials, wood finishing solutions, and appearance wood products. They cover the entire wood processing value chain, and their involvement will result in numerous research projects that will show the value and industrial benefit of the Chair's work. The partner companies are

- Canlak
- Inortech EMCO
- Portes Lambton
- Boa-Franc
- Canadel

Funding for the Chair's research program totals more than \$4.2 million over five years, including financial contributions from various Université Laval private and public partners.

BENEFITS

The development of products and processes that perform well and have a low environmental impact will help Canadian manufacturers position themselves strategically as leaders in the field of interior appearance wood products, for all types of materials.

The approaches developed in collaboration with the program's industrial partners will be used to diversify and broaden the use of interior wood products in appearance applications. They will include the use of stimuli-sensitive materials (such as self-healing materials), materials with a low environmental impact (such as aqueous phase products featuring high chemical and mechanical performance) and high-speed polymerization processes for wood surface densification.

The program will provide training for at least 21 graduate students and postdoctoral fellows in the chemistry of wood finishing and densification products and in wood densification processes. Twelve undergraduate interns will also be actively involved. They will benefit from a strongly interdisciplinary research environment (chemistry and wood sciences), and they will specialize in the high-demand sector of wood product finishing and densification. The training they will receive is unique in Canada and will help address a shortage of workers in this field.

Research made possible through the Chair will broaden and diversify the use of wood in indoor environments. Wood is prized for its low environmental impact. What's more, many studies seem to show that the use of wood has a positive effect on the comfort and well-being of a building's occupants, just like nature does.

Projects funded through the Chair will all target the development of low-toxicity and low-VOC (volatile organic compound) solutions. These solutions will have the added benefit of increasing the use of wood. According to a recent study, office workers feel less stress when there is more wood in the buildings where they work.



INFORMATION

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