

Hygric behavior of building envelope assemblies exposed to flooding and studied by neutron imaging

Record number : OPR-1030

Overview

RESEARCH DIRECTION

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Engineering

INFORMATION

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ADMINISTRATIVE UNIT(S)

Faculté de génie
Département de génie civil et de génie du
bâtiment

LEVEL(S)

2e cycle
3e cycle
Stage postdoctoral

LOCATION(S)

Campus de Sherbrooke

Project Description

The drying behavior of building envelope assemblies exposed to flooding has been little studied, particularly in terms of residual water distribution. Moreover, wood, which is ubiquitous in Canada, has a well-known affinity for water and a propensity to degrade under wet conditions. The aim of the project is to understand the complex aspects of wetting and drying of wood-framed assemblies, and the risks of component deformation and damage. This behavior is studied using advanced imaging modalities, namely neutron imaging. A deeper understanding of this behavior will reinforce the development of more resilient solutions to flooding, thus supporting sustainable and renewable construction buildings.

The project is being carried out in collaboration with the Applied Materials Group of the Paul Scherrer Institute, Villigen, Switzerland and Architectes Sans Frontière Québec. This collaboration requires stays in Switzerland.

Candidates should have a background in building, architectural, civil or mechanical engineering, or in applied physics. Candidates must be curious, creative, rigorous and highly motivated. Given the international nature of the project, fluency in English is a plus. Candidates will acquire knowledge of transport in porous media, wood science, advanced imaging and image analysis, and modeling of coupled phenomena.

This project can accommodate one or more students in the following programs :

- Postdoctoral fellowship
- Doctoral thesis
- Research-type master's thesis

Discipline(s) by

Funding offered

Partner(s)

Yes

Architecture sans frontières Québec

sector

Sciences naturelles et génie

Génie civil

The last update was on 23 October 2025. The University reserves the right to modify its projects without notice.