

**School of Sustainable
Building and Environmental
Management**

Dean's Message

Programs

Applied Research

▶ Ledcor Chair

▶ **Green Roofs in Cold
Climates**▶ Sturgeon River Watershed
Habitat Enhancement Study▶ Assessment of climate
change and impacts of
Armillaria Root Disease in
Alberta's Boreal Forest▶ Development of a New
Surface AnalyzerNAIT Mobile Water &
Wastewater Technician
Program Sponsored by BP
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Alumni Profiles

NAIT Physics

SCHOOL OF SUSTAINABLE BUILDING AND ENVIRONMENTAL MANAGEMENT

Green Roofs in Cold Climates



Dr. Leonie Nadeau, a faculty member within Biological Sciences (now retired), and her partners in industry worked to determine which Alberta native plant species grow best in Edmonton's climate. But there's a catch: they studied how these 17 plant species grow in various depths of growth material placed on Edmonton rooftops. This work is being continued by other NAIT staff who are conducting additional studies of these "green roofs", also called "living roofs":

- ▶ Dave Critchley, [Biological Sciences](#)
- ▶ Beverly Bruyere, [Landscape Architecture Design](#)
- ▶ Dr. Joe Varughese, [Bachelor of Technology in Technology Management](#)

In 2009 and 2010, researchers studied the roofs of three different buildings:

- ▶ Esak Consulting Ltd.
- ▶ Williams Engineering
- ▶ the Edmonton Waste Management Centre of Excellence

In 2011, [Roofing Evaluation Modules](#), bought from the British Columbia Institute of Technology (BCIT) complemented this research and helped determine heat flow, water retention and runoff on the different types of green roofs.

Of the native plant species studied, native grasses were the most resilient and competitive on roofs. Also, researchers found that, the deeper the material in which the plants were growing, the better the species performed. However, all species survived, and a few grew well in only 8 centimetres of growth media. Growth media that included biochar (a form of charcoal) supported plant species better than a commercial green roof medium or standard topsoil.

- ▶ [Project Partners](#)

HAVE A QUESTION?

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Phone: 780.471.6248

Toll free: 1.877.333.6248

NAIT PARTNERS WITH
ENJOY CENTRE ON GREEN
ROOF PROJECT

NAIT researchers will spend the next 3 years studying green roof technology at the Enjoy Centre in St. Albert. [Learn more about the project.](#)