



DANIELLE MONFET

Professor Monfet is a mechanical engineer teaching in Construction Engineering at ÉTS-Montreal. Her involvement with ASHRAE began during her PhD in building engineering and more recently through her implication in technical committees. Her main research theme is the development of new techniques for evaluating and improving the energy performance of multi-usage buildings.

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FUNDING

ASHRAE Grant \$5000

ÉTS Grant \$ 7500

Local Industry \$ 5000

PARTNERSHIPS

Donation of ventilators

Donation of additional measuring equipment

DURATION

4 months to design and 12 months to build

HVAC TEACHING MOCKUP – INTEGRATION OF A HUMIDIFIER AND MEASURING POINTS

École de technologie supérieure

OUR STORY

HVAC teaching mockup has led to the development of a new course on thermic and building science. It is used in teaching laboratories so the students can grasp the theoretical material covered in the classroom. The topics covered include applied thermodynamics (including the refrigeration cycle), simple HVAC processes (sensible heating, cooling, etc.), equipment performance analysis and control strategies (e.g., demand control ventilation) and thermal comfort.

OUR PROJECT

The HVAC teaching mockup consists of a modified Calibrated Hot Box, i.e. two climatic chambers separated by a wall whose thermal resistance has to be tested. Several HVAC systems are used to maintain each chamber at different and stable states. The first enclosure is maintained at conditions within the thermal comfort range, while the other is conditioned to emulate harsh Canadian winter climatic conditions. The ASHRAE Undergraduate grants allowed us to complete the setup and provided detailed analysis of the chamber environment and equipment operation.

