



## **Kraft Canada Inc. - Montreal Bakery**

Canadian Industry Program for Energy Conservation (CIPEC)

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### **High-induction air diffusion tubes provide energy savings at Kraft bakery**

Installing innovatively designed air diffusion tubes at Kraft Canada, Inc.'s 1500-square-metre (m<sup>2</sup>) oven unit at la Biscuiterie Kraft in Montréal, is estimated to save the company about 210 000 cubic metres (m<sup>3</sup>) of natural gas annually. The Montréal Bakery is a CIPEC Leader in the Food and Beverage Sector. As David Binet, Continuous Improvement Engineer, explains, "For an exothermic process like ours, using induction tubes to increase the amount of fresh air in the plant and reduce heating costs will be beneficial."

While the tubes have addressed a major concern – achieving significant energy savings – Claude Ménard, Senior Technician at Formatrix 67 and air treatment specialist working with Kraft, indicates that the tubes have also addressed other issues. Keeping the facility under positive air pressure was an ongoing concern, and the semi-automatic ventilation control needed modernization.

After evaluating factors such as outside air temperature and the performance of existing air tubes, Binet and the plant's sustainability team decided to install NAD Klima tubes. The high-induction air diffusion tubes ensure temperature, humidity and air density uniformity.

The project was completed in June 2009 during a two-week shutdown. It included the installation of eight 30-m long, 1.2-m diameter metal air diffusion tubes in the oven area; automation of the entire ventilation process; installation of two additional air handlers to increase heat recovery and comfort; and removal of the make-up air unit.

NAD Klima's high-induction air diffusion tubes are based on the physics principle of induction whereby a jet of air, exiting an air channel, creates a trough of low pressure around itself, which by induction draws in a bigger air volume. Using the induction principle, it is possible to move big air masses in a specific direction. NAD Klima applies this principle to a series of holes along its tubes. Mathematical models are used to determine the spacing and size of the holes in order to meet the required conditions of a facility.

In the case of the Montréal Bakery, the customized piercing pattern in the tubes mixes existing warm air with outdoor air, allowing the facility to operate at lower, more uniform temperatures without consuming energy to heat incoming air. "We can bring in air at temperatures as low as -7°C without condensation," says Binet. Moreover, the comfort level for employees has increased noticeably. Additional benefits include low maintenance, easy cleaning and limited dust buildup.

Pleased with the reduction in gas consumption to date, Binet recommends that other companies in situations similar to those at the Montréal Bakery evaluate their needs and, if feasible, consider these tubes as an alternative to conventional air diffusion systems.

