

Energy-Efficient Technologies: Innovation, Future Outlook and Verification

2010-01-29 - Energy efficiency technologies are continuously evolving in response to industry needs and demands. New technologies, those on the horizon, and how they are tested and verified in Canada, were the topics of discussion at an Energy 2009 panel session.

Alain Dufresne from NAD Klima described a new type of air duct developed by his company that operates on the principle of mixing air to make it isothermal. "The temperature differential between the floor and the ceiling of a facility will be less than 0.2°C," noted Dufresne in describing his company's innovations. The duct is made out of fabric with thousands of holes that create a ventilation effect that quickly mixes air from the floor of a facility to the ceiling. Easy to install and clean, the tubes allow intake air to be heated on demand.

Customized piercing of the tubes allows for adjustments to desired air pressure and velocity. A tube of 90 to 150 metres can be installed on tracks in one day. In one installation, one long tube replaced one facility's entire duct work for a 30% annual energy savings or the equivalent of \$385,000. The tubes can also be arranged to "make air curtains that prevent cold air from entering."

Applications in industry include the plastics manufacturing sector and printing plants – wherever heat is generated and there is air intake. The tubes eliminate air movement issues, and in comparison to large fans, are quiet. As well, air temperature remains constant throughout the plant. Similarly, in the summer, the tubes homogenize temperatures in the entire facility by using cooled air.

New technologies and innovation are critical to moving energy efficiency forward. Developments in combustion technologies as showcased by CanmetENERGY, and the new air duct tubes designed by NAD Klima are current examples of advances that hold promise.