

Jacobs & Thompson Energy Efficiency

CASE STUDY

ABOUT JACOBS & THOMPSON

Jacobs & Thompson is one of North America's most successful foam fabricators and distributors. Established in 1947, Jacobs & Thompson is a leading laminator and converter of customized foam parts and textile laminates. The company is also a leading supplier of urethane, neoprene and polyethylene foams, felts, and tapes. As a fully integrated foam parts supplier, Jacobs & Thompson has in-house formulation capabilities and manufactures pressure sensitive adhesives. Jacobs & Thompson employs over 100 people in its Toronto and Burlington facilities. The company is headquartered out a 665-square-metre facility in Toronto.



Jacobs & Thompson's head office in Toronto

Jacobs & Thompson serves 17 markets including the automotive, appliance, window and door, military, medical, flexographic, footwear and speciality apparel markets. The company's foam, adhesive and textile laminates can be found in a diverse range of products such as helmets, military gear, sporting goods, appliances, automobiles, office furniture and safety equipment. Most of Jacobs & Thompson's goods are sold through four supply channels: manufacturing, industrial distributors, consumer packaging, and fabricators and converters.

LOCATION

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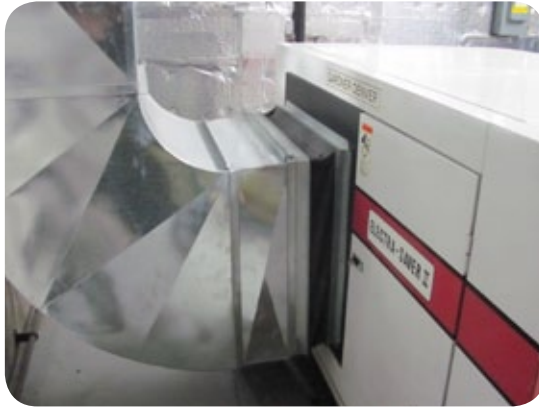
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ENERGY EFFICIENCY – RETROFIT GENERAL

In 2010, Jacobs & Thompson completed a series of heat reclamation and retrofit projects at its Toronto facility that resulted in annual energy savings of about 3,000 gigajoules (GJ).

COMPRESSOR

For the first heat reclamation measure, Jacobs & Thompson redirected the warm exhaust air on its 50-horsepower compressor back into the facility using an in-line fan. This measure has reduced the amount of space heating required during the heating season. Natural gas use has decreased by 440 GJ annually. Factoring in the measure's 14 GJ increase in annual electricity use, the net annual energy savings total 426 GJ (or \$3,576 per year). The project's cost of \$12,700 results in a payback period of about 3.5 years. This cost was reduced with the help of an incentive from Enbridge Gas.



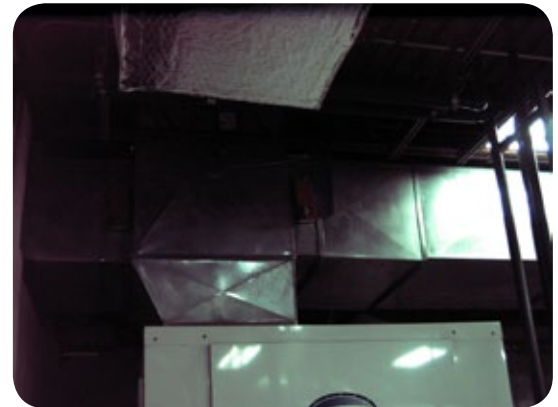
Duct work attached to the exhaust of the compressor redirects warm air back into the facility using an in-line fan



Duct work from the compressor brings warm air to different areas of the plant

CHILLER

The second measure involved replacing a 10-tonne chiller with a 20-tonne, three-pump chiller to supply a second laminator to meet the increased production demands. The goals were to reduce space heating requirements during the heating season and to remove heat from the production process. The new chiller removes heat from the laminating process machines and recirculates it into the building with an in-line blower. The change saves the company 1,010 GJ of energy and \$3,364 annually. The retrofit has added significantly to employee comfort in the workplace. The cost to replace the old chiller was \$36,000. An incentive from Enbridge Gas for the heat reclamation projects helped to reduce the cost.



Duct work attached to the new chiller delivers heating to the plant in two directions

BLOCK WALL INSULATING & WINDOW COVERING

The third heat reclamation measure involved insulating a block wall of the facility with Roxul mineral wool with a metalized foil surface, providing an R-8 insulation value. To reduce further heat losses, the facility's single-pane windows were also covered with a 10 millimetre clear polyester film on the inside. The combined wall insulation and window film have resulted in annual energy savings of about 1,500 GJ or \$14,179. The \$29,000 project cost was reduced with an incentive from Enbridge Gas. The payback period for the project is about two years.

LIGHTING RETROFIT



New T-8 lighting saves Jacobs & Thompson \$3,220 per month in energy costs

In addition to these projects, Jacobs & Thompson also implemented a lighting retrofit at its Toronto facility. Inside and outside the plant, the company replaced 416 T-12 fixtures with 165 T-8 and light reflective PL Type fixtures. Before the replacement, the combined wattage for the facility's fixtures was 62,885 watts and the cost of running the fixtures was \$5,695 per month. After the retrofit, the combined wattage was 25,578 watts and the operating cost was \$2,475. The retrofit thus resulted in a savings of 37,307 watts and \$3,220 per month. In addition to the substantial financial savings achieved through the lighting retrofit, the company also benefits

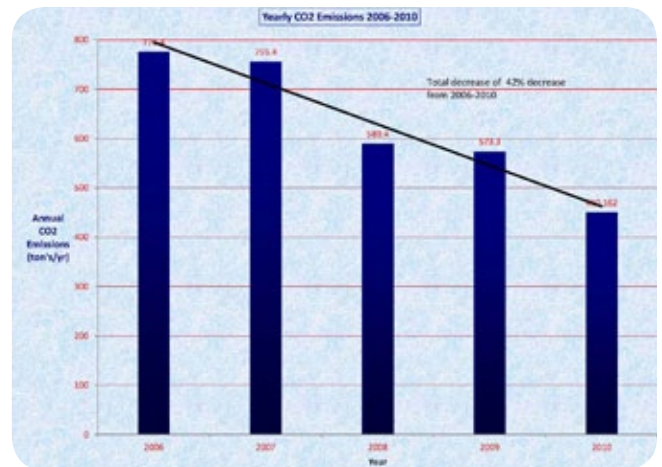
from a higher lumen output and better colour rendition, and significantly increased lighting levels. The \$60,000 project cost, which has a payback period of about 1.5 years, was reduced by incentives from Natural Resources Canada and Toronto Hydro. Staff labour also helped reduce costs.

PROJECT CHALLENGES

According to Peter Mauti, Jacobs & Thompson's Maintenance Manager, the energy retrofit process went smoothly and no significant challenges arose. "The key," he says, "is to do your homework, plan ahead, and keep track of the entire project from start to finish."

MOVING FORWARD

As an environmentally conscious company, Jacobs & Thompson is always working hard to be an environmentally sustainable fabrication partner. Being a responsible corporate citizen has been a top priority for the company when designing its waste recycling programs and energy conservation plans. The company is pleased that its efforts to date have resulted in measurable energy and natural gas savings, thereby reducing the company's overall contribution to greenhouse gas emissions and its carbon footprint.

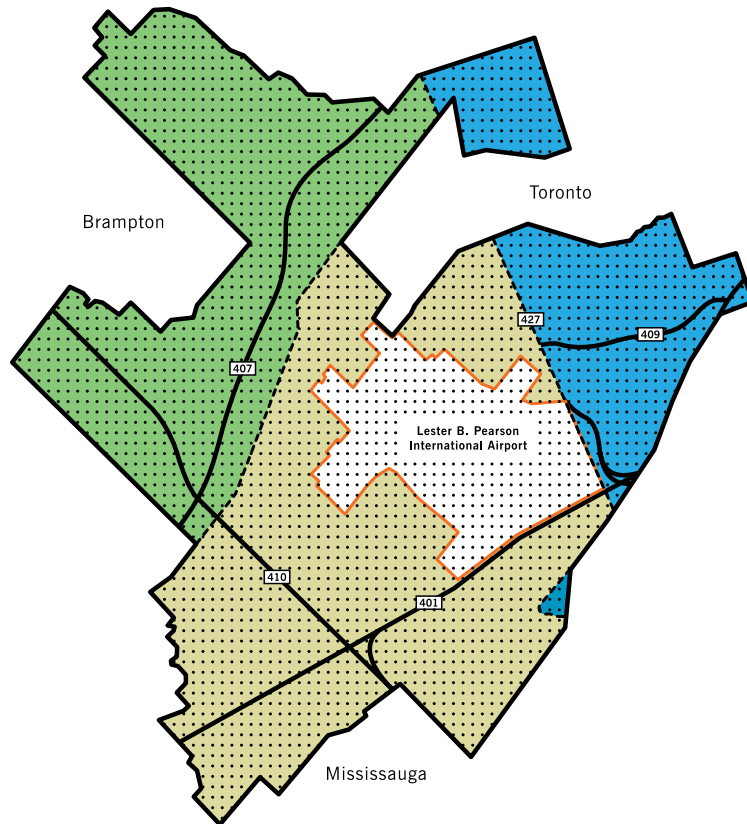


Jacobs & Thompson's yearly CO2 emissions have declined since 2006

Between 2002 and 2011, the company achieved an overall reduction of 31 per cent in its hydro consumption and a 47 per cent reduction in its natural gas consumption. Yearly CO2 emissions since 2006 have also gone down by 46 per cent (see graph). By 2011, due to the lighting retrofit and heat reclamation projects, Jacobs & Thompson was consuming less hydro and natural gas

than it had in any of the years previously, since it started recording this data in 2002. Moving forward the company hopes to keep this momentum and improve its energy performance even more. Plans to finalize the company's Carbon Footprint Improvement Plan, install rooftop solar panels at its Toronto facility in 2012, and reduce its waste disposal by 50 per cent by 2014 will certainly move the company closer to its goal.

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