



Recommissioning (RCx)

Case Study - Elementary School

Our Lady of Peace, Laval (QC)



The Our Lady of Peace Elementary School, built in 1968, comprises 1,950 m² of floor area on one single floor. The building accommodates children in kindergarten up to Grade 6. Before the RCx, the annual energy bill was about \$44,500. After completion in 2010, the RCx reduced the bill by 17% and focused mainly on the following electromechanical systems:

- Natural gas boiler with 225 kW capacity (23 hp)
- Electric boiler with 150 kW capacity
- Ventilation system with a capacity of 5,700 L/s (12,000 ft³/min)
- Cooling system with a capacity of 12 tonnes

Monetary or energy savings?

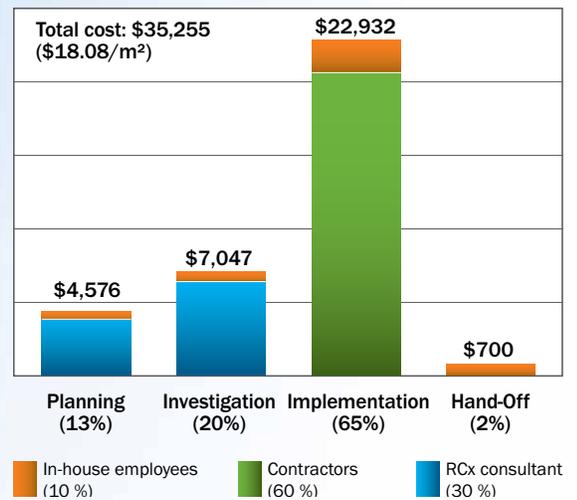
Monetary and energy savings often go hand in hand, as demonstrated in the shutdown of continuous operation of the ventilation system at Our Lady of Peace Elementary School. However, the decision as to whether or not to restart the electric boiler, which will result in a significant energy benefit, but at the same time generate a financial loss of 18%, is a more difficult choice.

Decision: The school board decided to give priority to an overall reduction in energy consumption and greenhouse gas emissions (GHGs) in order to meet the objectives set out at the start of the RCx project by the *ministère de l'Éducation, du Loisir et du Sport du Québec* [Quebec Department of Education, Recreation and Sport].

Results

- Energy savings¹: 745 GJ/year (37%)
- Monetary savings²: \$7,515/year
- GHG reduction: 41 t CO₂ e/year (equivalent to 7 cars)
- Simple payback period³: 4.7 years

Cost breakdown



¹ Savings verified by an independent third party in accordance with the International Performance Monitoring & Verification Protocol (IPMVP) and standardized according to weather conditions.

² Monetary savings do not include non-energy impacts (NEIs) such as extended service life of equipment or increased comfort for tenants.

³ Includes all costs for the four phases of the project.

RCx winning measures		Annual savings
<p>1 Optimization of stop/start commands for the ventilation unit and the main evacuators</p> <p>Operate the ventilation system and the main evacuators on a schedule rather than in continuous 24/7. Ensure that the fresh air flow is controlled based on the working evacuators. Annual savings of 36,113 kWh of electricity and 8,129 m³ of natural gas. Cost: \$10,700 Payback: 1.5 year</p>		<p>438 GJ/year \$7,000/year</p>
<p>2 Restart electric boiler</p> <p>Restart the electric boiler for natural gas use savings. Resulted in a 178,500 kWh increase in electricity consumption and a 21,000 m³ reduction in natural gas consumption. Cost: N/A Payback: N/A</p>		<p>155 GJ/year -\$1,665/year</p>
<p>3 Decrease the temperature during unoccupied periods</p> <p>Decrease the temperature in rooms at night and on weekends (from 22°C to 18°C / 72°F to 64°F) using sensors in strategic rooms. Annual savings of 1,710 m³ of natural gas. Cost: \$4,800 Payback: 4.5 years</p>		<p>65 GJ/year \$1,065/year</p>
<p>Seven other RCx measures Cost: \$5,380 Payback: 4.8 years</p>		<p>87 GJ/year \$1,115/year</p>

NB: Costs and payback periods include only implementation phase materials and labour.

“In addition to supporting the implementation of an improved preventive maintenance program, this recommissioning project has helped us to inexpensively achieve the objectives set by the department. Thus, we are reducing our ecological footprint and ensuring that our buildings last longer.”

Daniel Hogues, Director of Material Resources
Sir Wilfrid Laurier School Board
Laval (QC), Canada

Free tools and guides

- > Is your building a good candidate?
- > How do you start a project?
- > What grants are available?

 www.canmetenergy.nrcan.gc.ca/eng/rcx.html

Stakeholders

Building owner and manager:
Sir Wilfrid Laurier School Board

RCx consultant:
Bouthillette Parizeau

Measurement and verification:
Bouthillette Parizeau

Collaborator:
Ministère de l'Éducation, du Loisir et du Sport du Québec

Produced by CanmetENERGY

© Her Majesty the Queen in Right of Canada, 2011.

Catalogue No.: M154-46/2011E

ISBN: 978-1-100-18602-3

For information regarding reproduction rights, please contact Public Works and Government Services Canada at: 613-996-6886 or at: copyright.droitdauteur@pwgsc-tpsgc.gc.ca.