Natural Resources Canada | Ressources naturelles Canada

Recommissioning (RCx)

Case Study – Office Building

CRA Building, Victoria (BC)

About 345 occupants work daily at the CRA Building, a five-storey building of 8,175 m² built in 1995 and located on the Selkirk Waterfront in Victoria. The building houses a number of provincial government department tenants, including BC's forest fire command centre, which operates 24/7 during the peak fire season. Annual energy consumption was about $150,000 before the RCx was done. When completed in 2008, the RCx, focusing mainly on the following electromechanical systems, had reduced the bill by 26%:

- Two natural gas boilers, each with a 325 kW capacity (33 hp)
- Two air handling units with a total capacity of 39,200 L/s (83,000 ft³/min)
- Two chillers with a total capacity of 80 tonnes

An excellent candidate for RCx!

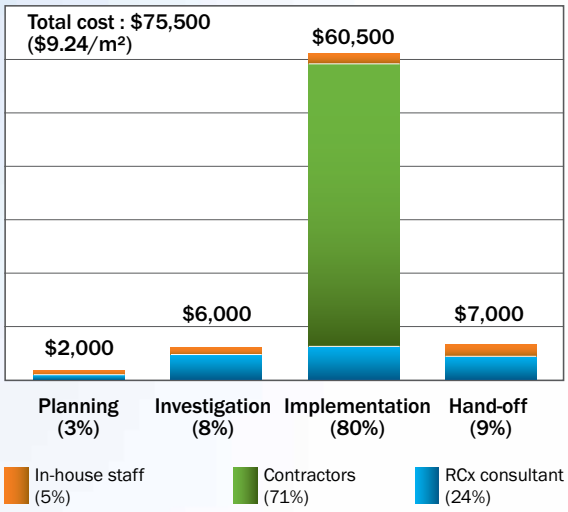
Despite the fact that this is a relatively new building with well maintained systems, the RCx project showed surprising results:

- Energy savings were more than double the initial projection, in particular because of new discoveries during the implementation phase
- Improvements to tenants comfort were greater than expected and had reduced the number of complaints
- The RCx project helped to achieve **BOMA BESt** environmental certification

Results

- Energy savings[1]: 3,042 GJ/year (30%)
  (60% natural gas and 40% electricity)
- Monetary savings[2]: $39,000/year
- GHG reduction: 164 t CO_2 e/year
  (equivalent to 30 cars)
- Simple payback period[3]: 1.9 year

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.*

Canada

RCx winning measures		Annual savings
1	**Simultaneous heating and cooling** Systems were consuming large quantities of natural gas during the summer months. Outdoor air lockout with a temperature prediction algorithm was installed to lock out heating systems during warmer weather. Cost: $6,400 | Payback: 1.1 year	529 GJ/year $5,800/year
2	**Optimization of variable air volume (VAV) systems** Adjusted minimum flows and controller logic on each VAV box optimized operation and limited the use of excessive ventilation. Cost: $3,200 | Payback: 0.8 year	380 GJ/year $4,085/year
3	**Reset of air temperature supply** Supply air temperature reset program implemented. Cost: $1,500 | Payback: 0.5 year	250 GJ/year $2,750/year
	Eleven other RCx measures Cost: $49,400 | Payback: 1.9 year	1,883 GJ/year $26,365/year

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

A TRIPLE WIN PROJECT

"We have been overwhelmingly satisfied with the energy upgrade project that SES Consulting implemented at the CRA Building. It resulted in lower operating costs, while simultaneously reducing the building's environmental impact and enhancing our tenants' satisfaction and pride in the building."

Karen Jawl, Project Manager
Jawl Properties Ltd.
Victoria (BC), Canada

Free tools and guides

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

www.canmetenergie.rncan.gc.ca/eng/rcx.html

Stakeholders

Building owner and manager:
Jawl Properties Ltd.

RCx consultant:
SES Consulting

Collaborator:
BC Hydro

Produced by CanmetENERGY

Catalogue no.: M154-48/2011E
ISBN: 9978-1-100-18606-1