

Mission School District (SD 75)

Comprehensive approach shortens timeline for HVAC upgrades by 66%

Participants:

- School District 75 – Mission (building owner and occupant)
- Energy Service Company (ESCO)
- BC Hydro (Energy Savings Opportunity Identification and Power Smart Incentive Program)
- NRCan (Energy Innovators Initiative)
- Ministry of Education (Annual Capital Grant)

Mission School District:

- 7,300 students, 700 FTE employees
- 24 buildings, 87,934 square metres of floor space
- Baseline (adjusted) energy cost of \$1,126,864 in 2002

Building Improvements:

- Lighting system upgrade and redesign on 19 buildings
- Optimization of heating plant operations on 5 buildings
- HVAC improvements at 3 schools
- Installation of automated building control systems in 3 schools
- Installation of vending misers on all pop machines in 22 schools

Contract/Financing:

- Performance guarantee period: November 2003 through June 2013
- \$3.5 million project cost (less financing and GST)
- Capital school district investment from the ACG (annual capital grant) for HVAC improvements at 3 schools: \$1.725 million
- Incentive grants/rebates: \$375,000
- Ten-year simple payback, including incentive funding and ACG injection, based on target annual utility savings of \$148,328

Project Process:

- Contract signed in 2003, retrofit installation from December 2003 through August 2004
- Facilities management and operations staff closely involved in monitoring and maintenance

Education and Training:

- Training and education/awareness programs for school staff and students developed and implemented in-house in September 2004
- ESCO services included training for facilities staff in the installation, programming, and commissioning of automated building control systems

Results:

- Total target annual savings \$148,328:
 - Guaranteed utility savings of \$85,610, plus
 - Projected operational savings \$37,500 (actual savings are \$51,366), plus
 - Projected utility savings of \$25,218 from in-house energy education/awareness program on efficient use of lighting fixtures and heating controls
- Actual annual reductions of 474,917 kWh electricity and 4,378 GJ natural gas
- Improvements in indoor air quality for three schools
- Elimination of 474 lighting fixtures and over 10,000 lamps, resulting in energy cost savings and improved occupant comfort
- Projected reduction in greenhouse gas (carbon dioxide) emissions by 227 tonnes per year

Points of Interest:

- THREE KEY SUCCESS FACTORS** 1 The school district identified three main factors that contributed to the overall success of their retrofit project. Firstly, the project was supported by a strong commitment from the school board, district managers and school staff. Secondly, the school district maintained a good working relationship with the ESCO. And finally, the facilities staff and project managers utilized a good knowledge base of their building systems to ensure careful and effective project planning.
- RETROFIT SPEEDS UP HVAC INSTALLATION** 2 The installation of high efficiency HVAC equipment in three schools was planned in order to improve indoor air quality and provide energy savings. As a stand-alone project, however, the HVAC upgrade would likely have been spread out over at least three years. The school district realized a benefit by combining the HVAC upgrade with the retrofit project, thereby shortening the time frame to less than one year.
- OPTED FOR IN-HOUSE EDUCATION PROGRAM** 3 The school district decided to reduce the contract cost by developing and implementing an in-house energy education and awareness program. The annual projected savings resulting from the education program are therefore not covered by the ESCO's guarantee. The intent of the education program is to promote behavioral changes in building occupants such as turning lights off when not in use and reducing heating where practical. Natural gas and electrical utility savings from such changes are projected to amount to \$25,218 annually.
- LIGHTING UPGRADE IMPROVES COMFORT** 4 Improving occupant comfort through a lighting upgrade was an important component of the school district's retrofit project. The feasibility study identified a number of lighting fixtures that needed to be replaced or removed. Among other improvements, these changes resulted in reduced glare from fluorescent lights and reduced hum from ballasts. As a result, the school district has reported a significant improvement in comfort for staff and students where lighting upgrades have been completed.
- HIGH LEVEL OF SATISFACTION** 5 "The project is on schedule and we are satisfied with the progress and the quality of work" said Surrinder Gahir, Project Supervisor for the Mission School District. "We have faced very few difficulties and are working closely with our ESCO and sub-contractors." Gahir further noted that the district wouldn't hesitate to undertake a project of this type again, stating that they would "follow similar steps and utilize the same 'team approach' between an ESCO and in-house staff."

For questions or additional support, please contact:

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