GDI AINSWORTH

CASE STUDY

Montreal School Services Centre



Project Details

Location
Montreal, Quebec

Number of Buildings
7 buildings

System Implemented
LED lighting, automation, boiler rooms, chillers, ventilation, heat pumps, solar

Project Goal
Reduce energy consumption and GHG emissions through a turnkey ESE contract with guarantees

Project Duration
2016-2023

Impact at a Glance

- Energy consumption reduction (Phase I): 38%
- Energy consumption reduction (Phase II): 33.9%
- GHG reduction (Phase I): 1,721 t CO_2 (50%)
- GHG reduction (Phase II): 972 t CO_2 (64.8%)
- Total annual savings: $1,011,812/year

Challenge

The Montreal School Services Centre (CSSDM) manages an extensive portfolio of school facilities, including several aging buildings with energy-intensive equipment and mechanical and electrical systems nearing the end of their service life.

The targeted buildings had outdated infrastructure (boiler rooms, lighting, ventilation, chillers), leading to significant energy overconsumption and high GHG emissions. The main constraint was the need to maintain continuous school operations throughout the construction work, while staying within the budgets provided by government grants.

The CSSDM also sought to involve its students and staff in the process through an awareness campaign on energy and environmental issues.

Methodology

In-depth building analysis and detailed energy audit.

Identification of inefficiencies and end-of-life equipment.

Assessment of operational constraints (school calendar, service continuity).

Design of efficiency measures tailored to each building.

Phased implementation approach to minimize disruption.

Awareness campaign involving students and staff.



Solution

- **Phase I (2016 - 2019)**

  Targeted buildings: 4 high schools (Lucien-Pagé, Édouard-Montpetit, Saint-Luc, and École des métiers de la construction).

  Services provided: Turnkey ESE (project management, design, engineering, construction, monitoring, training, and awareness).

  Investment: Total value of $8,042,370, including $1,782,501 in grants.

  Financial performance: Annual savings of $641,128 with a 10-year payback period.

  Environmental impact: Reduction of 1,721 t CO_2, representing a 50% decrease in GHG emissions.

- **Phase II (2020 - 2023)**

  Targeted buildings: 3 buildings (Charles-Lemoyne, ÉMÉMM, and ÉMAM).

  Services provided: Turnkey ESE (project management, design, engineering, construction, monitoring, training, and awareness-raising).

  Investment: Total value of $9,489,027, including $2,283,452 in grants.

  Financial performance: Annual savings of $370,684 with a payback period of 14 years.

  Environmental impact: Reduction of 972 t CO_2, representing a 64.8% decrease in GHG emissions.

The Ripple Effect

- **Indirect Financial Benefit:** The energy savings generated ($641,128/year in Phase I and $370,684/year in Phase II) allow the CSSDM to reinvest these funds in its educational mission. The ESE structure with performance guarantees eliminates financial risk for the institution.
- **Environmental / ESG Benefit:** Cumulative reduction of 2,693 tons of CO_2 per year, representing a 50% (Phase I) and 64.8% (Phase II) decrease in GHG emissions from the buildings in question. These results directly contribute to the climate commitments of the CSSDM and the City of Montreal.
- **Operational Benefits:** Replacement of outdated equipment with reliable, modern technologies; improved thermal and lighting comfort in classrooms; and reduced long-term maintenance costs.
- **Strategic Benefit and Scalability:** The success of Phase I directly led to Phase II, demonstrating the CSSDM's confidence in Énergère. This phased and replicable model can be deployed in other schools within the Quebec school system. The awareness campaign involving students and staff has strengthened the environmental culture within the schools.