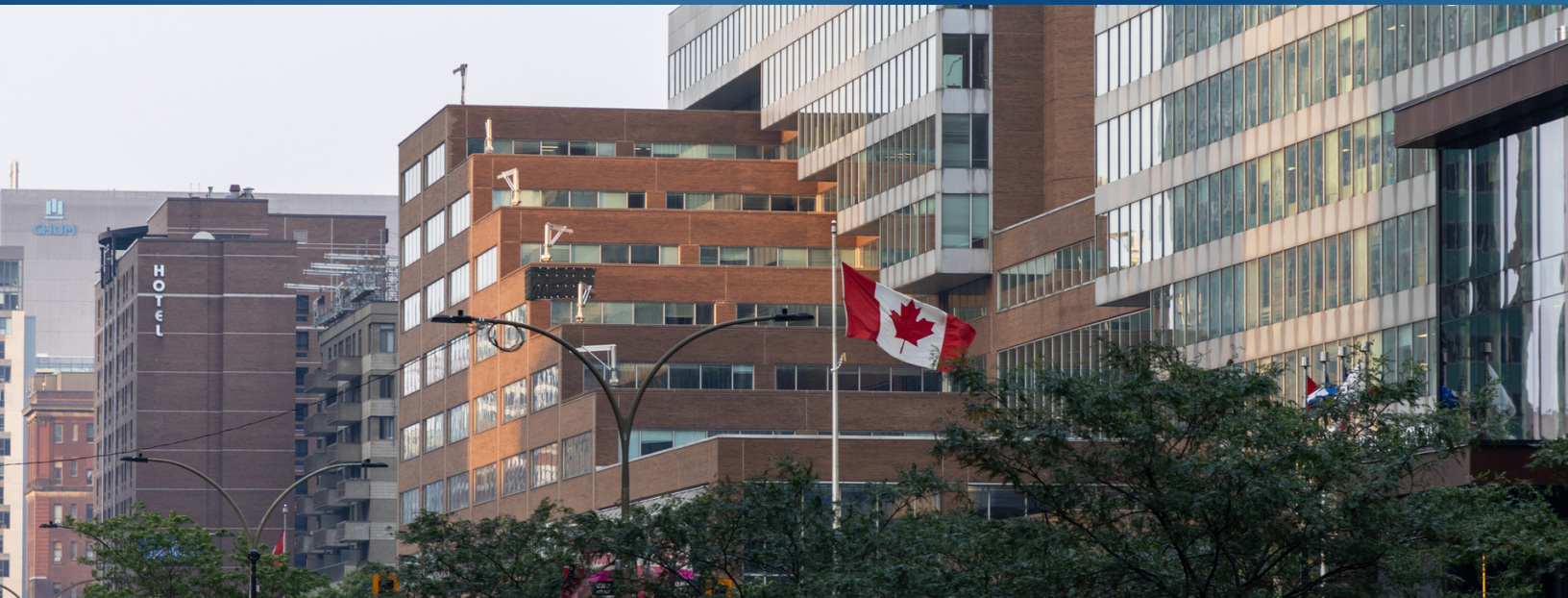


CASE STUDY

Turnkey Energy Efficiency Project

Guy-Favreau Complex &
Dominique-Ducharme Building



Project Details

Location

Montreal, Quebec

Number of Buildings

2: Guy-Favreau Complex (East Tower, West Tower, Basilica) +
Dominique-Ducharme Building

System Implemented

LED lighting, recommissioning, control system modernization, electric boiler, heat pumps, air-to-water heat pumps, internal heat recovery, hydraulic system, Hydro-Québec renewable energy

Project Goal

Reduce the combined residual carbon footprint of the two buildings by more than 90% under a turnkey energy performance contract (ESCO)

Impact at a Glance

✓ **92,9 %** reduction in GHG emissions

✓ **2,582** tons of CO₂ avoided per year

✓ **\$286,000** in annual energy savings



Challenge

Both facilities had aging mechanical infrastructure, heating equipment nearing the end of its useful life, and a significant reliance on fossil fuels, resulting in substantial and avoidable GHG emissions. The client's primary constraint was to drastically reduce the carbon footprint of these iconic buildings while maintaining occupant comfort and operational continuity during construction. Following the initial response to the request for proposals, the client challenged GDI Ainsworth to raise the bar, leading to an even more ambitious renovation program.



Methodology

Detailed feasibility study to assess baseline energy performance and identify inefficiencies in both properties.

Assessment of existing mechanical systems, controls, and heating infrastructure to quantify the potential for improvement.

Definition of a three-step energy reduction strategy: recommissioning, energy recovery, and renewable energy supply.

Design of integrated measures combining passive efficiency gains and active heat recovery technologies.

ESCO delivery model (design-build) with guaranteed energy savings, project management, engineering, construction, commissioning, training, and measurement & verification (M&V).



Solution

- ✓ Comprehensive replacement of lighting with LED fixtures throughout all buildings.
- ✓ Re-commissioning and addition of control points to re-optimize building operations and improve occupant comfort.
- ✓ Installation of an electric boiler and an internal heat recovery system via a hydraulic network (Guy-Favreau).
- ✓ Upgrade of the boiler room and replacement of end-of-life heating coils in the lean-to buildings (Guy-Favreau).
- ✓ Installation of an air-to-water heat pump and an internal heat recovery system (Dominique-Ducharme).
- ✓ Covering residual energy consumption with clean, renewable electricity from Hydro-Québec.



The Ripple Effect

- ✓ **Financial:** \$286,178 in annual energy cost savings; total project cost of \$8,844,701 with \$307,913 in government grants secured.
- ✓ **Payback period of 9.9 years (net of maintenance investments).**
- ✓ **Environmental / ESG:** A reduction of 2,582 metric tons of CO₂ per year, representing 92.9% of the facilities' total GHG emissions. Nearly complete decarbonization of both buildings.
- ✓ **Operational:** Redundant heating sources enhance climate resilience and system reliability; replacing end-of-life equipment reduces maintenance risks and improves long-term performance.
- ✓ **Strategic:** Demonstrates the viability of deep renovation programs for large-scale, occupied federal facilities. This model is replicable for the decarbonization goals of the SPAC real estate portfolio.