GDI AINSWORTH

CASE STUDY

Optimizing School Environments for Comfort and Efficiency

Inside GDI Ainsworth's targeted energy optimization strategy that delivered improved comofrt and reduced energy consumption

Project Details

Location
Coquitlam, Canada

Number of Buildings
1 - 38,300 ft^2 facility

System Implemented
HVAC retuning and energy optimization through multiple energy and comfort conservation measures (ECMs), updated control strategies, and energy monitoring dashboard

Project Goal
Resolve building comfort complaints while reducing gas and electrical energy consumption and equipment wear

Impact at a Glance

- Reduced electrical consumption by an average of 20% within three months
- Reduced gas consumption by an average of 28% within three months
- Lowered electrical usage by 12,960 kWh and saved 197 GJ of energy
- Improved thermal comfort throughout classrooms and shared spaces

Challenge

During the first 18 months of operation, James Park Elementary experienced widespread hot and cold comfort complaints.

At the same time, the building exhibited a high energy use index for both gas and electricity.

Mechanical equipment was frequently operating at full speed during school hours, leading to unnecessary energy consumption and increased equipment wear.

The school required a solution that could address comfort concerns while delivering measurable efficiency improvements.

Methodology

Conducted a detailed review of building performance, energy usage, and comfort conditions

Identified inefficiencies in mechanical system operation and control sequences

Collaborated with School District staff to prioritize comfort and operational needs

Selected targeted ECMs to deliver immediate energy and comfort improvements

Implemented monitoring tools to validate performance and track ongoing results

Solution

- Returned all VAV flow controllers to improve zone-level comfort control
- Improved unit ventilator supply air temperature (SAT) control
- Revised operation sequences on primary and secondary loop systems
- Applied a calculated load demand reset strategy for heat pumps and boiler systems
- Optimized heat recovery fan control sequences
- Reduced unnecessary full-speed equipment operation during school hours
- Implemented an Earthright Dashboard to monitor energy usage and performance

The Ripple Effect

- **Reduced operating costs and greenhouse gas emissions**
- **Improved classroom comfort, supporting a better learning environment**
- **Lower equipment wear and extended system life**
- **Provided data visibility to support ongoing energy management decisions**