



**BIG ASS
FANS**



ENERGY & SUSTAINABILITY NEVER FELT SO COOL

THE IMPACT OF BIG ASS FANS ON THE REDUCTION OF CARBON EMISSIONS AND ENERGY USAGE

Industry: International Retail Chain

Company Goals:

- Reduce Carbon Emissions
- Lower Energy Costs
- Comfort Improvements for Employees and Guests

THE NUMBERS DON'T LIE

ENERGY SAVINGS

18,026

kWh

MONEY SAVED

\$4,817

ANNUALLY PER BUILDING

CARBON REDUCTION

11,359

kg CO₂e

20%

DECREASE IN OVERALL
ELECTRICAL COSTS

0.17¢

PER SQUARE FOOT
SAVINGS

BACKGROUND

International retail chain with operations across Canada and the U.S. sought to evaluate whether installed Big Ass Fans in their facilities reduced carbon emissions, energy usage, and improved occupant comfort.

The company selected two similar retail showrooms. Each building was roughly 28,000 square feet, equipped with electric-powered air conditioning systems, and a 22' ceiling. Variables:

- **Building 1:** No fans installed
- **Building 2:** Equipped with (4) Big Ass Fan's Essence industrial fans spinning at ~17'

BASELINE ANALYSIS

Before intervention, historical energy data revealed **Building 1** consumed approximately 5% more energy annually than **Building 2** and incurred 8% higher electricity costs, despite being slightly smaller.

TESTING METHODOLOGY

- **Building 1:** Set to standard HVAC setpoints
- **Building 2:** HVAC setpoints increased by 8°F, leveraging the fans to maintain comfort
- Monthly electricity bills were analyzed to compare energy usage and cost
- Following 3-months of testing, **Building 2** with fans saw:
 - 16% usage reduction
 - 13% electricity cost reduction
 - 15,200 kWh saved
 - \$2,104 electricity savings

Building 2 with fans saw the following CO₂e savings:

- Ontario: 1,192 kg CO₂e
- Canada-wide average: 11,359 kg CO₂e

ANNUALIZED BENEFITS

- **Energy Savings:** 18,026 kWh
- **Cost Savings:** \$4,817 CAD
 - Cooling: \$3,481
 - Heating: \$1,336
- **Efficiency:** \$0.17 per square foot (based on a 28,000 sq. ft. facility)

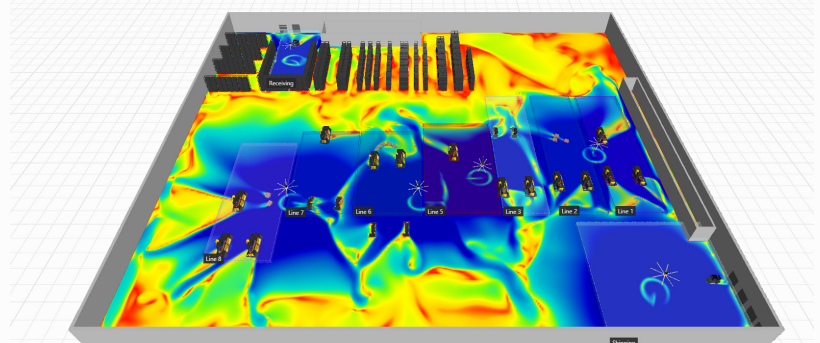
Testing achieved significant energy savings from **Building 2** while maintaining comparable thermal comfort for retail showroom occupants. In winter, the fans are used to destratify the air, and further enhance HVAC efficiency.

Using Cooling Degree Days (CDDs) the testing team normalized the amount of energy needed to cool the store, resulting in a savings of ~\$5.75 per cooling degree day saved with fans. With varying weather by day, location, and season, CDDs can indicate cross country savings in varied climates.

CONCLUSION:

Big Ass Fans' cut energy use, lowered carbon emissions, and reduced costs—without sacrificing comfort. Big Ass Fans offers a smart, sustainable solution that proves efficiency and performance can coexist.

AIRFLOW ANALYSIS SUPPORT



SpecLab®, Big Ass Fans' proprietary software, analyzes and visualizes airflow and heat in a given space to demonstrate through live simulations estimated energy savings, cooling coverage, and occupant comfort through CFD (computational fluid dynamics). All simulations are based on industry-standard test results obtained in our state-of-the-art, LEED certified, R&D facility in Lexington, KY.

SpecLab® enables the simulation of multiple product and configuration testing prior to purchase to help customers identify the best solution for their business, and quantify impact using industry-backed standards for thermal comfort.

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