

Mass. Based Pharmaceutical

Airflow Optimization in
Pharmaceutical R&D Facility
Yields Massive Impact



AT A GLANCE

Goals

- Reduce laboratory energy consumption without compromising safety
- Improve visibility into ventilation performance and IAQ conditions
- Leverage utility rebates to offset capital investment
- Create a repeatable framework for portfolio-wide optimization

Results

- Approx. 1,270,000 reduction in kWh
- Approx. 117,000 reduction in Therms
- Annual energy savings of \$381,000
- \$200,000 utility rebate
- ROI <2 years

Thrive Buildings partnered with a Massachusetts-based pharmaceutical company to launch a data-driven lab airflow optimization project that not only cut energy costs and carbon emissions—but also laid the foundation for a scalable, multi-site optimization strategy. By addressing excessive ventilation and deferred maintenance in one of their core research buildings, the client achieved over \$380,000 in annual utility and operational savings, improved safety, and aligned with broader ESG goals. This successful implementation is now serving as the blueprint for similar upgrades across their R&D portfolio.

Ventilation Strategy

The Thrive team designed a holistic airflow optimization project for the laboratory and office spaces.

- Aircuity's demand control ventilation allowed for lower baseline air changes per hour during unoccupied times and periods when the air is clean.
- Temperature deadbands contributed to further airflow reductions across eight air handling and rooftop units.
- Reduced room-level demand led to lower fan speeds and decreased energy consumption.
- Lower airflow also minimized reheating at terminal units, significantly reducing gas consumption.

The project leveraged the local utility's gas rebate program and secured over \$200,000 in utility rebates.

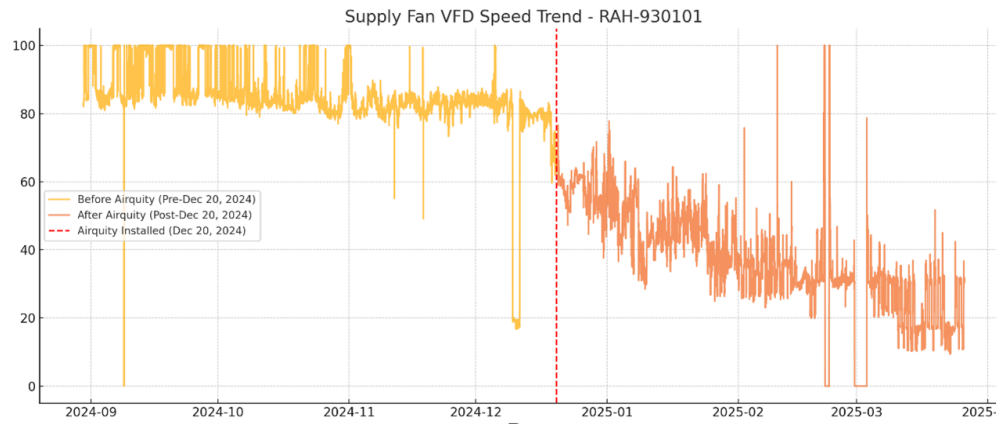
Large Reduction in Energy Consumption

The customer's review of the first two months of utility data showed \$79,402 in operating savings (normalized for 2024 heating degree days), projecting \$381,130 annually and a payback of under 2 years.

Conclusion

This project demonstrates the power of ventilation strategies. By integrating Airquity, temperature deadbands, and optimized airflow settings, Thrive delivered substantial reductions in both electricity and gas usage—while also improving indoor environmental quality. With approximately \$381,130 in annual utility savings and over \$200,000 in rebates, this project serves as a scalable model for energy efficiency across additional buildings in the client's portfolio.

Initial 2-month Electricity Consumption Comparison



1 Year AHU Fan Speed Reduction Trend

	2024 (before project)	2025 (project implemented)	kWh Reduction	Cost Savings @ \$0.15 per kWh
January	933,300	800,800	132,500	\$19,882
February	935,300	716,800	218,200	\$32,775
Total	1,869,000	1,517,600	351,400	\$52,657

Initial 2-month Gas Consumption Comparison

	2024 (before project)	2025 (project implemented)	Therm Reduction	Cost Savings @ \$1.04 per Therm
January	45,780	33,558	12,222	\$12,711
February	53,038	45,441	7,597	\$7,901
Total	98,819	78,999	19,820	\$20,613