# SetSafe®: Control Strategy for Idle Fume Hood Management

**Measured Air Performance, LLC**

## Executive Summary

Laboratory ventilation is a dominant energy load in research and healthcare buildings. Efforts to reduce energy often focus on room ventilation rates. However, fume hoods frequently limit how far air change rates (ACH) can be reduced due to their minimum airflow requirements. Even when not in use, fume hoods often draw excessive air due to traditional high minimum flow settings. SetSafe® by Measured Air Performance provides a safe, intelligent solution that monitors hood activity and enables airflow reductions during idle periods. It is ideal for laboratories where fume hoods are the bottleneck in reducing ACH and achieving sustainability goals.

## The Problem: High Minimum Flows in Idle Fume Hoods

Fume hoods can remain idle over 70% of the time. However, standard minimum flow rates—typically 250 CFM and often more (300+ CFM) due to hood leakage for a 6-foot hood—are maintained even during prolonged inactivity. These settings, driven by ANSI Z9.5 guidelines, are designed to mitigate risks in the event of a spill, but they create massive energy waste when no one is using the hood. Even with sashes closed, leakage and high minimums drive unnecessary ventilation loads.

## The Solution: SetSafe® Idle Fume Hood Management

SetSafe® addresses this inefficiency by safely reducing airflow based on real-time hood activity. It monitors multiple parameters to determine when a hood is inactive:

- Sash position
- Hood electrical status
- Reach detection (occupant access)
- History of hood access

Once the hood is confirmed idle for a predetermined period, SetSafe® activates ECO-mode which signals the hood controls or Building Automation System (BAS) to reduce flow or hibernate the hood. This enables energy savings without compromising safety. Typically, the fume hood flow can be reduced to the minimum flow capability of the valve or damper system controlling the hood exhaust. For example, for a standard 10-inch valve applied to a 6-foot fume hood, minimum flows may be reduced from 300+ CFM to 50 CFM. Also, as soon as any one of

the sensed parameters associated with the hood change to indicate hood usage, SetSafe®
immediately takes the hood out of ECO-mode, returning hood operation to active flow levels.

## Compatibility & Integration

SetSafe® integrates with any fume hood control system. It operates independently of airflow control vendors and works alongside existing BAS infrastructure. Installation typically takes less than 2 hours per hood and requires no ongoing maintenance.

## What If the Fume Hood Is Used for Chemical Storage?

A common concern when implementing SetSafe® is whether it can safely reduce airflow in fume hoods used for chemical storage.

In these cases, it is important to distinguish between active chemical processes and passive storage:

- **Storage cabinets typically require far less airflow** than operational fume hoods. Ventilated chemical storage cabinets, for example, are often specified by manufacturers to operate at **5–25 CFM**—a fraction of the airflow associated with even an idle fume hood.
- Guidance from **SEFA 9 (Scientific Equipment and Furniture Association)**, which covers ventilated enclosures, supports this by recommending **low but continuous exhaust rates**—often cited as **0.5 to 1.0 CFM per linear foot**—to prevent vapor accumulation.

SetSafe® can accommodate these scenarios. In **less toxic or low-hazard labs**, hoods used only for storage can be safely transitioned into **hibernation mode**, where airflow is maintained at levels which are typically much greater than those **used in ventilated cabinets.** For example, while placed in ECO-mode by SetSafe® a 6-foot hood may operate at flows down to 50 CFM (the minimum capability of a 10-inch valve), providing ventilation that is at least double that applied to most storage cabinets.

This functionality aligns with ANSI Z9.5 and SEFA guidelines and supports labs aiming to reduce **ACH limitations** while ensuring appropriate containment.

## Use Case: Cambridge Pharmaceutical Research Facility

A pilot program at a large pharmaceutical lab in Cambridge deployed SetSafe® on two 135-inch horizontal sash fume hoods. The result:

- **Annual airflow reduction**: 700 CFM

- **Cost savings**: $5,600/year (@ $8/CFM)
- **Install cost**: $6,000 ($3,000 per hood)
- **ROI**: < 12 months

SetSafe® delivered measurable reductions in energy and cost with no disruption to lab operations.

## Extended Benefits

- Supports sustainability targets and carbon reduction
- Failsafe design: Flow returns to normal upon activity
- Enables deeper ACH reductions in labs where fume hoods are limiting

In less toxic environments, SetSafe® can be configured to hibernate hoods completely.

## Conclusion

SetSafe® delivers a practical, scalable path to energy savings in lab ventilation. By recognizing and responding to fume hood inactivity, it allows labs to safely lower ACH, cut costs, and meet carbon goals without major redesigns.

To learn more, contact Measured Air Performance at info@measuredap.com or visit www.measuredap.com.