

# Laboratory Exhaust Systems

**Vektor™-HS with SÄVVE Technology**  
*Sure-Aire™ Variable Volume Exhaust*

The Greenheck Vektor™-HS model is now available with SÄVVE technology (Sure-Aire™ Variable Volume Exhaust). As a leader in the laboratory ventilation industry, this option provides end users with a method to reduce fan energy in variable volume laboratories.

Greenheck's Vektor™-HS with SÄVVE technology maintains constant discharge stack velocity regardless of the laboratory exhaust airflow, while reducing fan energy consumption on variable volume and demand-based ventilation systems.



*Patent Pending*



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Historically...in a traditional variable volume laboratory exhaust system, the bypass air damper(s) modulate to maintain duct static pressure. The bypass damper modulation maintains constant airflow volume through the fan to achieve the desired discharge velocity. (No fan energy savings).

## SĀVVE System Basics

By utilizing Greenheck's SĀVVE technology, a constant duct static pressure is maintained by adjusting the fan speed with a variable frequency drive. As airflow through the fan varies, the nozzle discharge area automatically adjusts to maintain a constant and safe discharge velocity.

(Minimum 3,000 ft/min per ANSI Z9.5)

Reduce  
your Fan  
Energy  
Costs up  
to 60%



MAX Flow



HALF Flow



MIN Flow

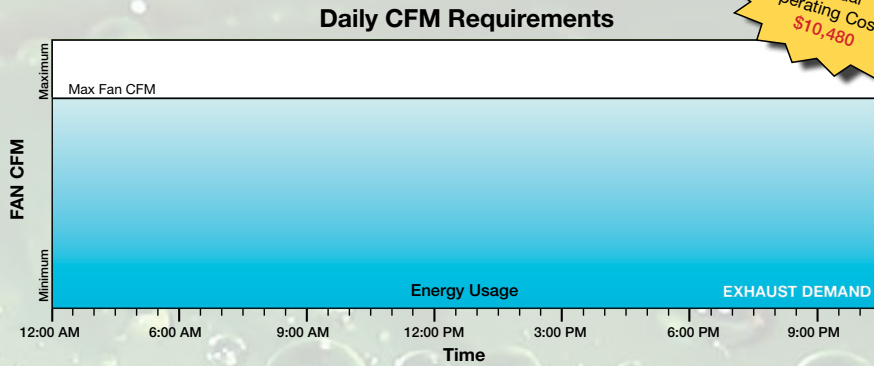
**Automatic Nozzle Positioning** to maintain constant discharge velocity with variable fan flow.

# Energy Savings by Application

The following charts provide examples and illustrate potential savings that could be realized by using Greenheck's SÄVVE technology.

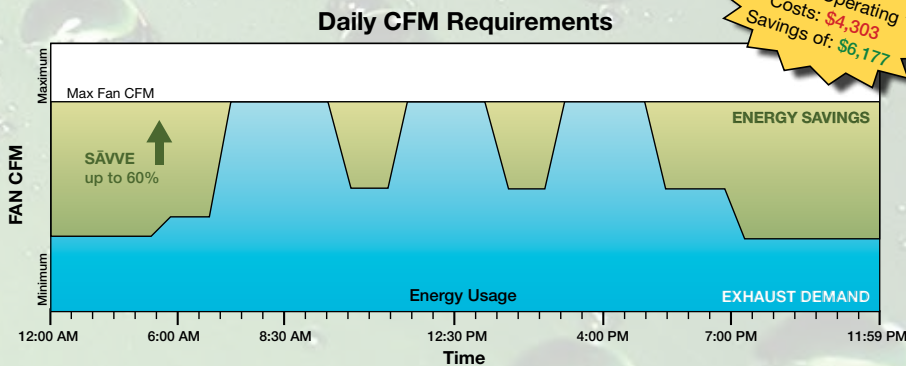
## Traditional Variable Air Volume

Traditional VAV laboratory exhaust systems use constant speed fans and a bypass air damper. Fans run full speed at all times; no energy savings.



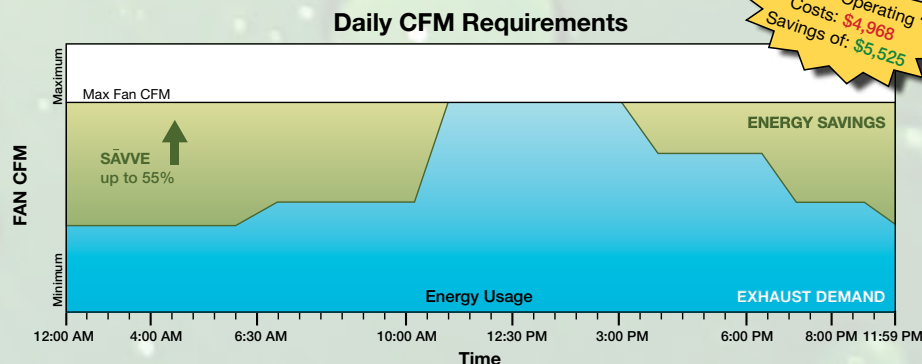
## High School and University Laboratories

Educational laboratories combine chemical storage, research and multiple class periods during a typical day. Peak loads occur during class periods.



## Research Laboratories

Research laboratories have longer periods of peak load based on the operating hours of the facility.



Examples provided are based on a comparison of 20,000 cfm maximum at 1 in. wg at \$.10 kW/hr

# Vektor™-HS SÄVVE Technology Details

## Components

- Constant velocity nozzle
- Sure-Aire™ airflow monitoring with pressure transducer in NEMA-3R enclosure
- Variable frequency drive with integral controller and bypass mode
- Modulating actuator on nozzle with position feedback
- Two-position, spring/return actuator on isolation damper

## Benefits

- Reduced fan energy consumption
- Lower sound when laboratory is unoccupied
- Simplified start-up process
- Maintain discharge velocity to meet ANSI Z9.5
- Single-source responsibility
- Real time system monitoring with BMS
- Used with demand-based ventilation system
- LEED™ Credit Opportunities
  - Energy & Atmosphere
  - Outdoor Environmental Quality

## Payback

- Lower energy consumption
  - Reduce heating or air conditioning cost
  - Reduce operating costs
- Lower horsepower
- Maintain proper pressurization of occupied spaces
- System designs incorporating SÄVVE technology may qualify for energy rebate programs

for better air – specify Greenheck.

SÄVVE technology will reduce fan operating cost based on the actual exhaust demand within the laboratory. To learn more about the Vektor™-HS with SÄVVE technology, contact your local Greenheck representative or visit Laboratory Exhaust Systems at [greenheck.com](http://greenheck.com).



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