



January 24, 2017

Contact:

Nainan Desai, PE, MBA, MSME, CEM
Assistant Director
Facilities Management
University of South Florida
(813) 974-2488 | FAX: (813) 974-3199
4202 E. Fowler Avenue, OPM0100
Tampa, FL 33620-6980
ndesai@usf.edu | www.pplant.usf.edu

Subject: USF / BSF 151 – Energy Savings/ Trending Info

As requested, Hobo Data loggers were installed to both Fume Hoods in BSF-151. Once the fume hoods were converted from Constant Volume to Variable we started logging the data.

These data loggers were placed to measure the reduction in exhaust air-flow from each hood to determine savings for the University of South Florida.



The graphs below correspond to daily data retrieved from each Hobo data logger.
The orange line corresponds to the fume hood running at constant volume; prior to the TEL conversion.
The blue line corresponds to the actual airflows after the conversion to VAV.

Please let us know if you have any questions.

Thank you for your help



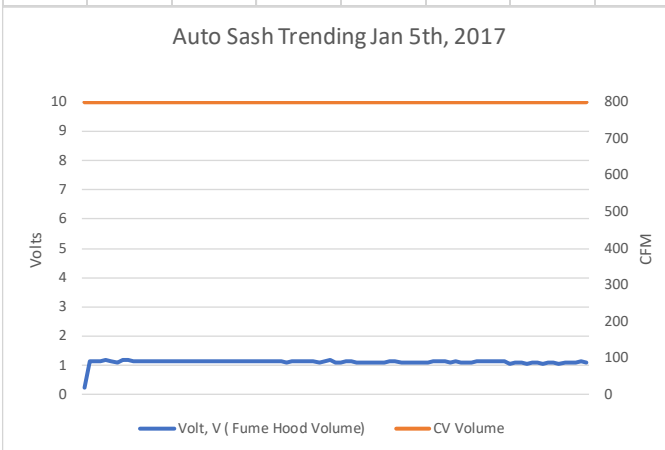
Bill Herrera - Sales Director
ECM Holding Group, LLC.
Headquarters | 2559 Badger Ave. - Oshkosh, WI 54904
Home Office | 6484 Pumpkin Seed Cr. - Boca Raton, FL 33433



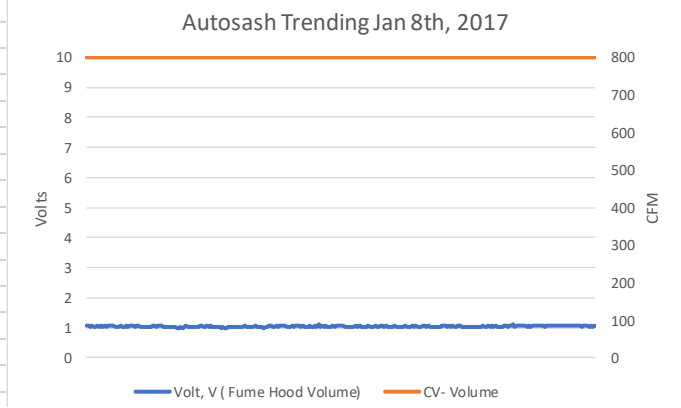
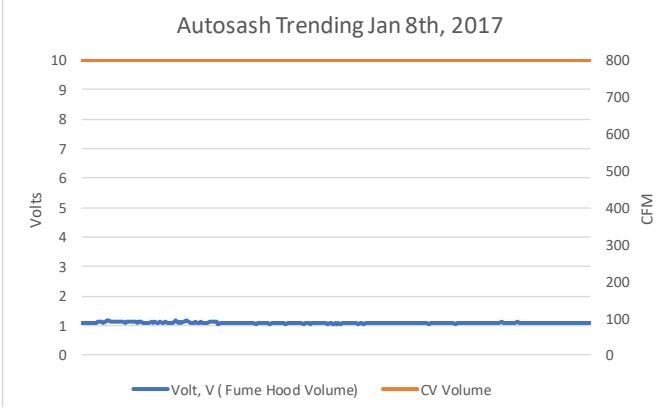
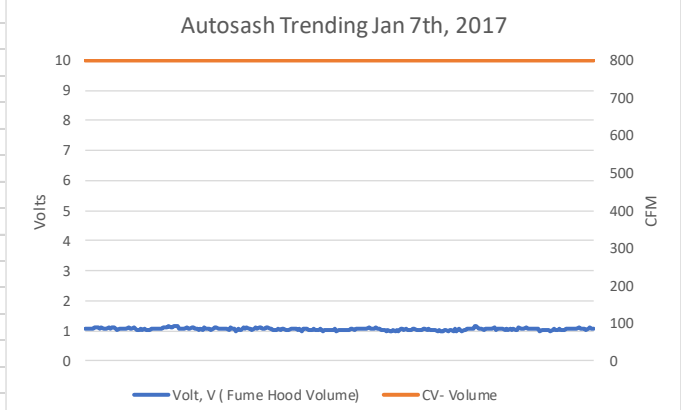
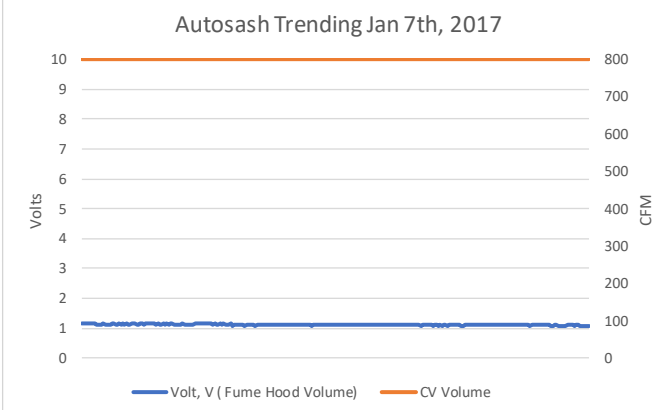
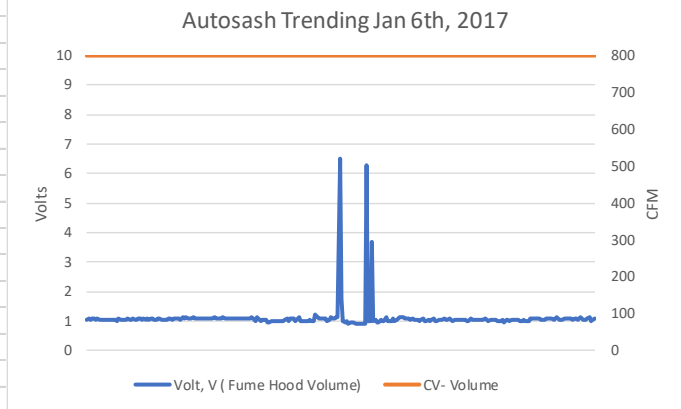
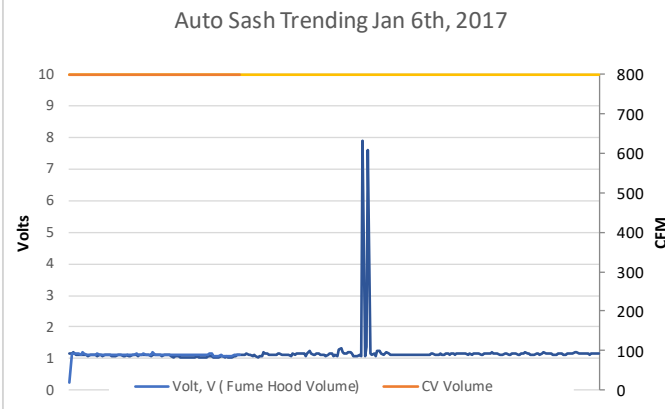
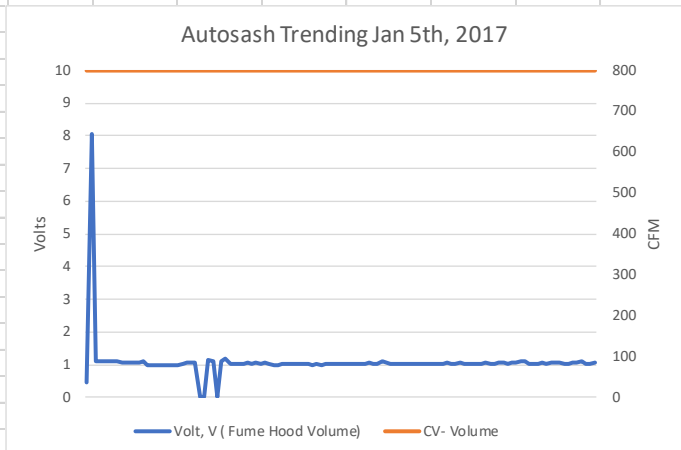
O. 920 267 6111 | M. 561 246 1885 | F. 920 273 6005 bherrera@ecmholdinggroup.com

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FUME HOOD #1- USF-BSF 151

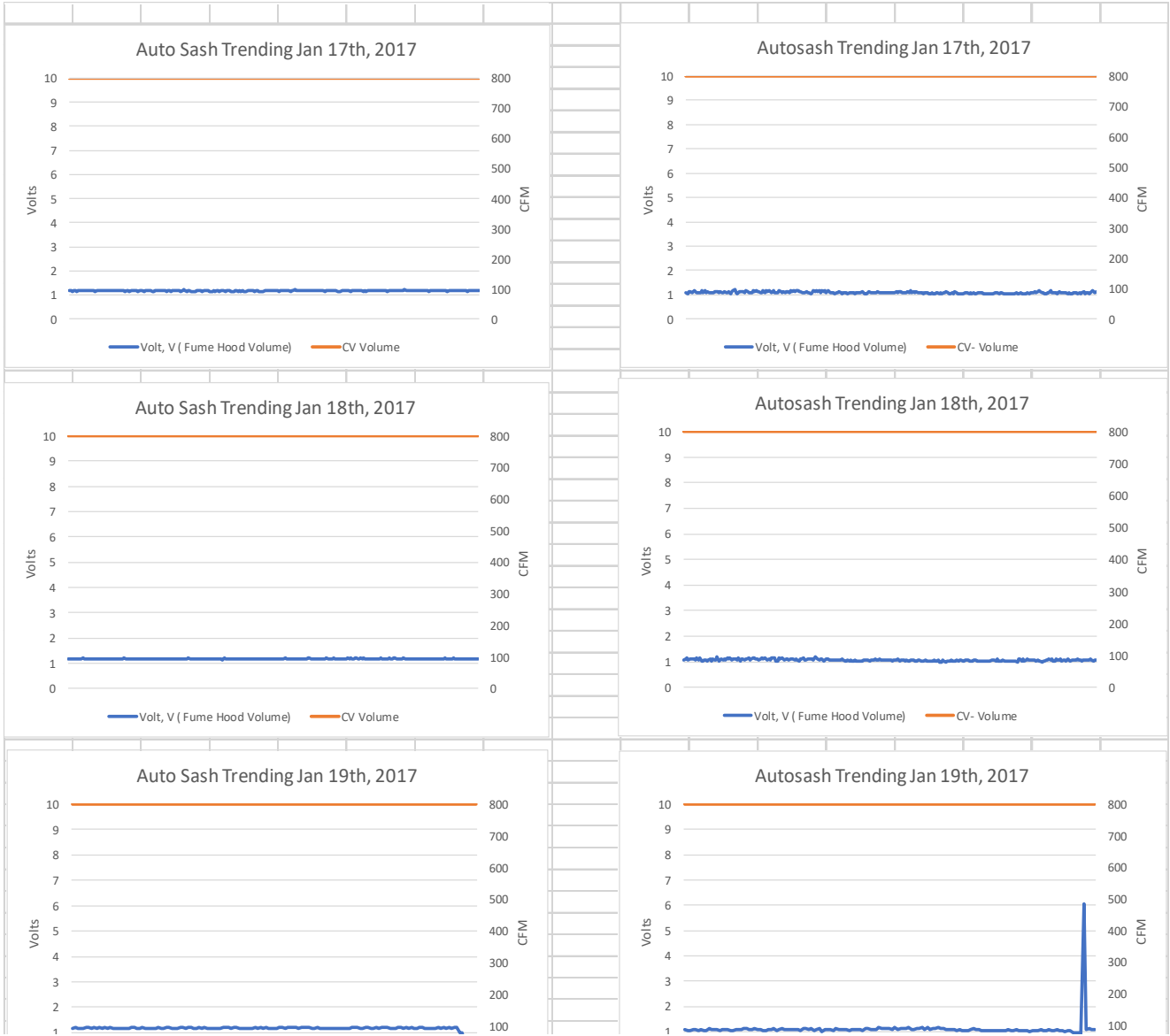


FUME HOOD #2- USF-BSF 151











Total Average Savings

University Of South Florida - Utility Costs- BSF LABS- RM 151						
Gas	Base cost per Therm	Base cost per 10^6Btu	Gas - Steam Boiler efficiency	Application efficiency - assuming Steam Coil	Cost used for calculation per 10^6Btu	
	\$0.67	\$6.72	80%	70%	\$12.00	
Cooling - assume CHW from local chiller	Cost per kWh electricity	Chiller efficiency kWh / ton	Base cost per 10^6Btu	Chilled Water Application efficiency	Cost used for calculation per 10^6Btu	
	\$0.090	1	\$7.50	76%	\$12.00	
Electricity		Base cost per kWh			Cost used for calculation per kWh	
		\$0.090			\$0.090	
NOTE :- The program calculates the actual amount of Heating or Cooling energy put in to the AHU air supply.						
The amount of primary Heating or Cooling energy is the Energy put in to the AHU air supply Divided by the system efficiencies						

Summary- Calculation on a per hood basis				
System 1 TOTAL YEARLY ENERGY \$ 5,432.00 AT AN AVERAGE \$ 6.79/CFM				
System 2 TOTAL YEARLY ENERGY \$ 651.84 AT AN AVERAGE \$ 6.79/CFM				

Scope of Work- University of South Florida- BSF 151-Conversion of Constant Volume to Variable Volume-



TEL-AFA 1000 Monitor installed, Monitor working in dual function, first to continuously monitor if safe conditions exist by measuring airflow. Secondly, controlling the VAV system, ensuring we provide safe conditions, and controlling exhaust to maximize energy savings.



TEL- Auto Sash installed, ensures that the sash door is shut when fume hood is not in use. Tel once again focuses on delivering a product that focuses on both energy, but also safety. This provides safer conditions to the users, by ensuring that the sash door is shut when a person is not physically working within the fume hood..

Also, by combining both Auto Sash and the TEL VAV controller we can guarantee the savings by ensuring that the sash door is shut at every opportunity.



Existing valves were able to be retrofitted using TEL retrofit kit. This ensures that the conversion from CV to VAV will be converted quickly, without having to replace/ remove existing duct work.

This also, minimizes expenses tremendously by being able to reuse existing equipment.



New LED Lights were installed in place of the existing fluorescent lights This will benefit the lab user by providing a crisper/ cleaner light.

Also, provides a reduction of energy from 64W down to 26W- LED Lights



Fume Hood was certified to ensure proper airflow.



Lastly, TEL AFA-5000 was installed.

Room space controller was powered up to control the entire space. Controlling

- Fume Hoods
- General Exhaust
- Room Supply
- Presence Sensors
- Emergency Purge Button
- Measuring CO₂, Differential pressure, temp, RH, etc.