

Laboratory Exhaust Fan Speed Optimization

Date reviewed: 04/04/2018

Description of Technology		Energy Saving Opportunity	
<p>Multiple factors affect laboratory exhaust and air change rates, one being the required plume height at the exhaust fan. Plume height requirements are intended to limit or stop re-entrainment of contaminated exhaust into the return of nearby air handling units. Typically, fans are specified to provide a constant minimum air velocity at the outlet. This technology uses photoionization detectors to monitor lab exhaust for hundreds of contaminants. It then optimizes fan speed and plume height based on contamination levels. Fan speed is reduced to 50% when no contaminants are detected, thereby reducing fan power.</p>	Sector(s):	<input type="checkbox"/>	Residential
		<input checked="" type="checkbox"/>	Commercial & Industrial
	Applicability Criteria:	Laboratories	
	Efficiency Improvement:		
	Energy (%) Savings Potential:	Highly variable	
Demand (%) Reduction Potential:	Highly variable		
Strengths		Weakness	
<ul style="list-style-type: none"> Optimizes exhaust fan speed based on the amount of contaminants being used in the lab. Fan speed is reduced to 50% when no contaminants are detected, thereby reducing fan power. Active sensing of contaminants has the potential to increase indoor air quality and safety. Integrates with a buildings BMS system 		<ul style="list-style-type: none"> Likely to be barriers to entry from an environmental health and safety perspective. Each sensor needs continuous calibration which adds additional maintenance points. If not properly maintained sensors can fail. Under this scenario all fans are turned to maximum flow and there are no energy savings. New technology with relatively few installations. 	
Third Party Analysis/ Previous MTAC Reviews		Suppliers Known to MTAC	MTAC Status
		Measured Air Performance	Acknowledged to have energy savings potential and referred to individual PA for their own EE program consideration
Market Development Issues			
Cost:	Variable		
Market Risk and Barriers:	EH&S approval		
Time to Market:	Currently on market		
Simple Pay-back: (Years)	Variable		