

Emerging Trends

Jeff Dover

THE FUTURE OF AIR BALANCE

New technologies that will revolutionize how air-balance issues are discovered and corrected

New Column

Most restaurant facility managers typically don't spend a lot of time checking their building air balances. They usually notice it when there is a significant negative-pressure situation that is causing the following issues:

- Higher energy bills caused by longer HVAC run times
- Higher repair and maintenance costs for ventilation equipment due to the longer run times
- Hot and cold spots or an uncomfortable environment for guests and staff
- Worsened smoke capture capacity in the kitchen hoods
- More pests in the building
- Increased humidity in the building, resulting in added problems, such as slippery floors, sweating diffusers and damage to walls, ceilings, woodwork and more.

For facility managers to properly notice and correct balance issues, they must rely on store operators or the HVAC service company to alert them that problems exist and action is needed. In most cases, the pressures must be tremendously negative to bring awareness.

A Better Approach

I spoke with a number of people from Melink Corp. about the future of air-balance monitoring. The following are some gleaned insights.

There are several demand control ventilation products for kitchen exhaust hoods that are designed to slow exhaust and make-up air (MUA) fans during slower cooking periods. When the fan CFMs are reduced, signals are sent to the other RTUs to adjust the air-flows to keep the entire building in proper balance.

Professional air-balance companies and HVAC manufacturers are discussing how RTUs can communicate with other building air-handling equipment. The goal is to link them for optimum operation to keep facilities positively balanced. In the future, equipment will be able to self-diagnose performance issues, and other units will automatically adjust airflow to compensate for the disabled one.

HVAC manufacturers are incorporating control strategies to assist in maintaining positive building pressures throughout the unit's sequence of operation, such as heating versus cooling and multi-speed fan modes.

Proactive Monitoring

Soon, there may be products that monitor the entire building pressure and total balance. The vision is for relatively inexpensive systems with numerous sensors to read air balance in real time and send alerts when negative readings cause building, energy and maintenance issues. They may even be solar powered so operating costs will be zero. The system has the potential to revolutionize the restaurant industry in how air-balance issues are determined and corrected.

As the cost of sensors declines, there will be more opportunities to monitor data points on all the ventilation equipment. Eventually, they will be tied together into a building management system (BMS) that continuously and automatically controls the airflows of all the equipment. It will be able to slow exhaust fans during slower times of the day, self-diagnose the various pieces of equipment and, when necessary, provide a list of issues that need to be repaired on a specific air handler. It should be able to even communicate via a CMMS to a service provider to dispatch a technician to make repairs.

Looking to the Future

New technologies will help facility professionals tackle air-balance problems. In the future, facility managers will check a dashboard report for any alerts and issues that need to be addressed. They

will be able to easily determine the ROI on energy and maintenance savings by implementing a system-wide air-balance monitoring program. With real-time status and monitoring, following up on repair issues will be a snap. And, the most important benefit will be a comfortable interior restaurant environment for both customers and employees.

Thank you to Melink Corp. for providing valuable input and insight for this article.

I'm always looking for feedback. Please feel free to contact me at (972) 805-0905, ext. 3, or email at jeff@rfmaonline.com. Dover and out.

Jeff Dover's facilities career started in 1985. He has been employed by several major chains (Ponderosa, Steak & Ale, Bennigan's, TGI Friday's, Fuddruckers and recently Five Guys Burgers and Fries). His technical education enabled him to take the lead as energy manager, facilities manager and director of facilities at the various brands.