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Atlanta Luxury Hotel Gives Poor Ventilation & Foul Odors the Shaft

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Until recently, fixing leaky ventilation shafts has been a non-starter for most hotels, motels and other hospitality facilities. The expense and disruption typically involved in finding, accessing and sealing leaky ductwork made remediation measures impractical at best. As a result, a tremendous number of U.S. lodgings across the country are plagued by the poor indoor air quality issues and high-energy bills that come from improper ventilation.

That is changing. A new approach to duct sealing developed by the U.S. Department of Energy is helping solve this near ubiquitous problem.

Case in point: While the JW Marriott hotel in Atlanta's affluent Buckhead district has always been a model of elegance and luxury, owners of the 28 year-old building continued to struggle with issues related to a poorly designed ventilation system. Inadequate exhaust led to musty odors that plagued the building for years. With long ventilation shafts embedded behind the building's structure, accessing and repairing the problem had proven to be logistically and economically impossible.

A consultant brought in to evaluate the situation found that exhaust levels differed substantially from floor to floor. Top floors received the full 40 CFM of exhaust they were designed to pull, while bottom floors received only 5 CFM or less. Like trying to draw liquid through a straw with holes in it, no matter how hard the exhaust fans worked to draw stale air out of the building, they were unable to do the job. The consultant's recommended solution: start by cleaning and sealing each of the ten 23-story ventilation shafts running down the length of the building.

Aeroseal-Based Duct Technology

After reviewing options, the hotel engineers decided to try the aerosol-based duct sealing technology they had learned about at a recent industry conference. Unlike traditional duct sealing methods that require manual sealing with tape or mastic, the new approach works from the inside of the duct system to find and seal the leaks. This inside out approach alleviates the need to open walls or tear through insulation in order to get to the leaks. The sealant does not coat the entire interior of the ductwork but instead remains suspended in air until it comes in contact with a leak. Here it adheres to the edge of the leak and then to other sealant particles until the entire hole is sealed. The computer-controlled aerosol duct sealing system monitors and reports the progress of the sealing efforts as it is being administered.

"We looked at several options and the aeroseal technology stood out as being the most economical and non-intrusive process," said Frank Atkins, the hotel's Director of Engineering.

The call went out to experts at a commercial duct cleaning and sealing service provider. They guaranteed they could do the work with minimal disruption to the building and to normal hotel operations. All sealing was done on Mondays—the hotel's quietest day. Guests were also strategically booked into rooms away from the ventilation shafts being sealed that day.

Once prep work was completed, it took only about one hour to seal each shaft. Using his own testing equipment, the hotel's lead engineer confirmed what the computerized system indicated: average leakage was reduced from 397 CFM down to 62 CFM...and during the entire process, few if any guests were even aware that such a significant remediation process was taking place.

And in the end, the musty odors that plagued the hotel for years are now gone—the facility managers expect their energy bill to reflect thousands of dollars in annual savings as well.



About Aeroseal Technology

Aeroseal duct sealing technology was developed with funding from the U.S. Department of Energy and others looking for a viable means of improving building performance. Now generally available through licensed duct sealing contractors, the technology has been used to reduce energy use, improve indoor air quality and repair ventilation in hotels, medical facilities, schools and other commercial buildings around the world. Notable aeroseal projects include New York's Met Life building, the John Muir Medical Center, Harvard University, the Las Vegas Wynn Luxury Resort and Casino, and the Capital Plaza Hotel, in downtown Frankfurt, Ky. Aeroseal technology has won a number of industry awards including the 2016 AHR Product of The Year award. The U.S. Department of Energy has named aeroseal technology one of the most important energy conservation technologies to be introduced on the market since the agency was first established.

For more information on aeroseal technology, visit www.aeroseal.com.

About the Author

Ken Summers is a founding member of the Comfort Institute, an international building performance research, training and consumer protection organization. Summers has been in the HVAC industry since 1979, and for the past 21 years, he has been helping progressive HVAC contractors adopt a "whole building" approach to performance including air distribution diagnostics and repair. Ken has written articles that have appeared in a variety of industry publications and has spoken at ACCA, PHCC, RSES and EPA sponsored functions.

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