

DOCKETED

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Aeroseal as an Approved Measure

To whom it may concern;

Aeroseal, duct sealing from the inside, aims to reduce duct leakage by 85-90% while reducing energy consumption and increasing indoor air quality. During the HVAC Ventilation assessment, if adequate ventilation doesn't exist in the facility, Aeroseal can assist in meeting these requirements without major duct replacement / renovation projects. Please advise if Aeroseal would be an approved measure under "School Energy Efficiency Stimulus Program" Assembly Bill 841. Documentation attached to support above.

Thank you,
Aeroseal

Additional submitted attachment is included below.



DUCT SEALING

An ECM for K-12 Schools



HVAC Systems Hold an Untapped Energy Saving Opportunity

ESCOs face an ongoing challenge in reaching goals for colleges and universities. There is a narrow margin of error and ongoing policy changes to follow. Leading ESCOs across the nation are looking beyond standard ECMs like lighting to navigate these challenges. Duct sealing is an ECM giving ESCOs a new level of flexibility in delivering sustainable energy savings for educational facilities.

Duct Leakage Wastes Nearly \$3 Billion in Energy Annually

ASHRAE estimates 75% of buildings have up to 40% air duct leakage. It is why Berkeley National Labs identified duct leakage as the most expensive waste of energy in commercial buildings. Even leaving the lights on and letting the HVAC run when a building is unoccupied wastes less energy.

A Safe & Effective ECM with Guaranteed Results

As you will see below, AeroSeal works with ESCOs across the nation to address airflow and ventilation issues with our comprehensive, four-phase process, duct leakage models, and innovative, duct sealing technology. Our trusted team of experts and network of service providers work as a seamless extension of your project team so you can focus on other project priorities.

AeroSeal's Comprehensive Four Phase Approach to Duct Sealing



PHASE 1

Audit & Evaluate

Data gathering and site inspection for an efficient and effective project plan.



PHASE 2

Test & Plan

Quantifying ductwork leakage and running our energy model to ensure plan success.



PHASE 3

Repair, Clean, Sanitize & Seal

Customizing solutions to reach project goals and meet each building's specific needs.



PHASE 4

Measurement & Verification

Tracking and verifying project work digitally before issuing a certificate of completion.

Project Examples



Avalon Elementary School Fort Washington, MD

- Helped new HVAC system reach performance levels
- Reduced leakage by 90%



Clinton Prairie Schools Frankfort, IN

- Qualified project for energy rebate, earned ROI in 3 years
- Realized \$10,000 in annual energy savings



Gallego Intermediate School Tucson, AZ

- Avoided the expense of replacing ductwork
- Reduced leakage by 85%



Glenwood Junior High Princeton, WV

- Eliminated uneven, uncomfortable temperatures
- Reduced leakage by 60%



LA Unified School District Los Angeles, CA

- Avoided the expense of replacing ductwork
- Reduced leakage by 92%



Licking Heights Elementary School Blacklick, OH

- Qualified for \$27,000 energy rebate
- Realized \$45,000 in annual energy savings

Free Project Audit

Contact us today to get a free project audit from our team of experts and learn how Aroseal can improve your next Education project.

EMAIL: info@aroseal.com

CALL: (877) FIX-DUCT

WEB: aroseal.com/commercial



DUCT SEALING

An IAQ Solution for K-12



Improving Airflow, Ventilation in K-12 Facilities with Duct Sealing

The importance of indoor air quality (IAQ) has never been greater. And while the link between IAQ, sick building syndrome and productivity has been proven, most facility managers only treat the symptoms of poor IAQ. Without treating the primary cause, leaky ductwork, schools will continue to put student health at risk.

Leaky Ducts Ruin the Air We Breathe

Leaky ductwork lets contaminants including pathogens, mold spores, mildew, VOCs, and dust to circulate throughout the building. As you can see on the following page, this impairs the dilution of contaminated indoor air as well as the exhaust of that diluted air from the building.

Relying on filtration, UV lights, and duct cleaning alone to solve the issue is not enough. These technologies do not address the root cause of poor IAQ. And ductwork is often behind drywall

and in crawlspaces, making it impossible to repair without the added cost of demolition and restoration.

A Safe & Effective ECM with Guaranteed Results

Aeroseal's duct sealing technology is used across the globe to improve IAQ. We have delivered results for more than 150,000 projects– including education and healthcare facilities as well as government buildings and corporate offices. And our technology and sealant comply with some of the industry's most exacting requirements.

Poor IAQ is a Critical Problem We Solve

90% ... of an American's time is spent indoors – **EPA**

40% ... of the U.S. population risks health problems from poor IAQ – **Greenguard Certification**

\$60B \$60 Billion dollars is lost each year to lower worker productivity from poor IAQ – **NADCA**

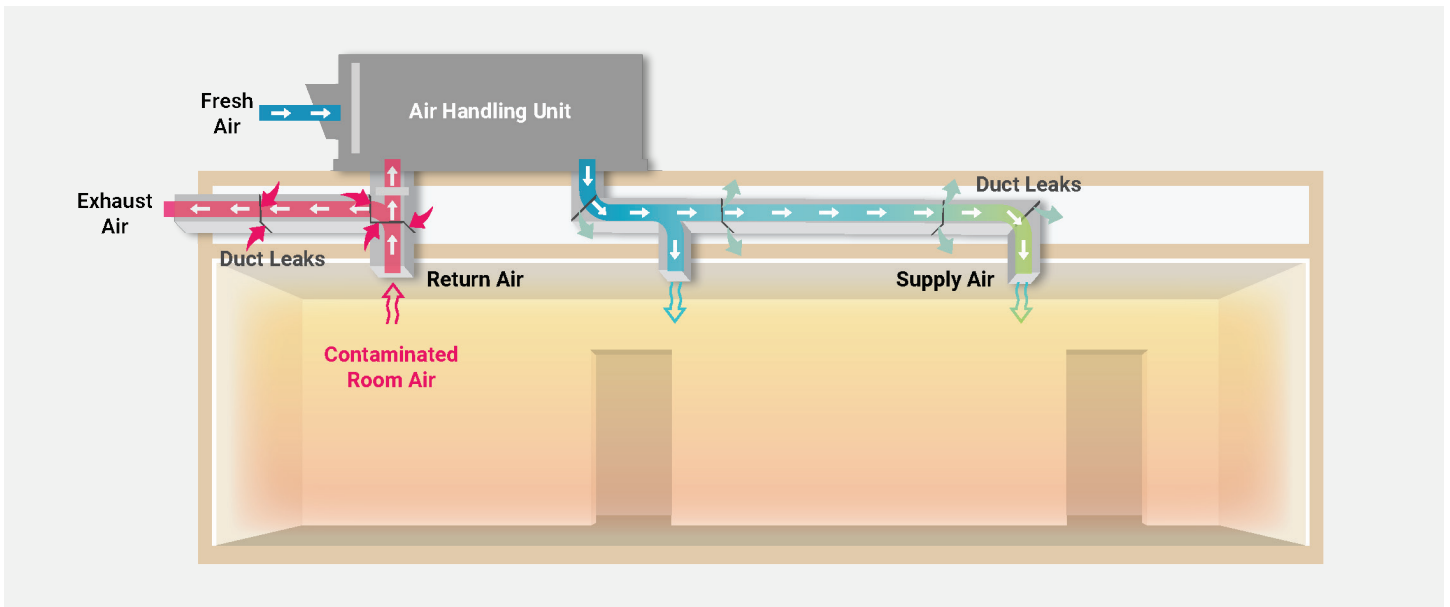


Improper HVAC operation and maintenance are its most common causes – **CDC**

66% ... of IAQ problems involve inefficient ductwork – **NADCA**



Proper ventilation reduces the spread of pathogens – **Harvard University**



How Leaky Ductwork Impacts IAQ: Leaks in the supply and return ductwork impacts IAQ. First by reducing the dilution of contaminated indoor air and then by exhausting less of this diluted air from the building.

Aeroseal is backed by a comprehensive process and innovative duct sealing technology to address IAQ problems at their source.



Audit & Evaluation

Data gathering and site inspection is conducted to create an efficient and effective plan that is customized to meet your project's specific needs.



Model & Plan

We use one of our four different models to calculate and quantify duct leakage. This data is used to inform energy savings models.



Repair, Clean, Sanitize & Seal

As needed, the ductwork is repaired, cleaned, and sanitized to prepare for the duct sealing process. Then we pressurize your entire ductwork system and use our non-invasive technology to seal the ductwork and reduce duct leakage as much as 95% or more on projects.



Measurement & Verification

Our software tracks, records and verifies project work digitally, in real time. Once leak reduction goals have been reached, the Aeroseal software prints a certificate of completion (shown here) with before and after leakage amounts.

Free Project Audit

Contact us today to get a free project audit from our team of experts and learn how Aeroseal can improve your next Education project.

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WEB: aeroseal.com/commercial

ECM: Duct Sealing with Aeroseal

- ✓ Duct Leakage = Energy Loss
- ✓ Reduce fan energy
- ✓ Reduce heating and cooling losses
- ✓ Improved Indoor Air Quality (IAQ)
- ✓ Guaranteed energy savings through guaranteed CFM reduction

Observations and Opportunities

Aeroseal duct sealing is a patented technology for sealing visible, invisible, and hidden duct work in commercial applications. Sealant is injected into the ductwork to seal leaks and works from the “inside out”. Commercial application benefits save energy and costs associated with heating, cooling, and fan operation and improve indoor air quality and overall comfort of the building. The Aeroseal sealant is designed to minimize air leakage from air ducts and exhaust shafts. Research studies conducted by Berkeley National Labs have concluded that duct leakage is the most expensive building fault, annual energy costs from leakage is \$2.9 Billion. ASHRAE estimates 75% of buildings have 10-25% air duct leakage. Energy Star ranks air distribution as the #1 energy savings opportunity in existing buildings with a typical payback of 2-7 years. Aeroseal duct sealing technology was developed at Lawrence Berkeley National Laboratories through funding from U.S. Department of Energy, it has been used extensively worldwide in energy savings performance contracts and shown to reduce duct leakage by up to 95%. Accelerated testing conducted at Lawrence Berkeley National Laboratory resulted in Aeroseal showing no sign of deterioration in the aeroseal seals - and it continued to seal much past the life span of tape and mastic. It has been durability tested to over 40 years. This highly effective means of sealing all types of HVAC ductwork will overcome shortfalls with mastic/tape and seals all leaks up to 5/8” diameter. The sealant is a stable, non-toxic, non-flammable emulsion of water and vinyl acetate polymer.

Description of Existing Systems

During the IGA, detailed surveys will be conducted to visually inspect the ductwork from the main branches to the furthest terminal devices and space air diffusers. Aeroseal has a prescribed Duct Leakage Assessment process that is used to identify all the major pathways for duct leakage that exist and estimate the overall percentage of air flow being lost to unconditioned cavities within the building.

Before



After



Technical Feasibility

Audit and Evaluation: Every building is different based on type, location and its HVAC system. With a thorough understanding of a building’s current state, we ensure an efficient and effective project timeline

Model and Plan: The project implementation plan is part of each project’s quotation or bid documentation and is based on input from phase one. The plan estimates energy savings from our duct leakage

reduction. It is created using one of Aeroseal’s four different energy models. Duct leakage estimates can be converted for use in a project’s broader energy modeling.

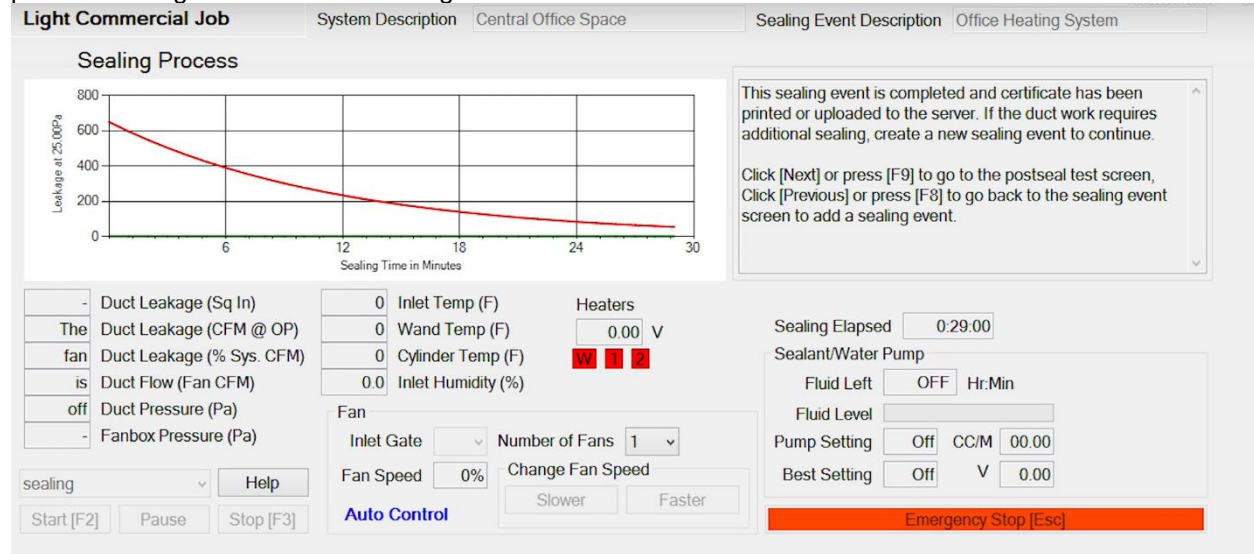
Repair, Clean, Sanitize, and Seal: Making sure the duct system doesn’t need repairs is critical to ensuring project results. Our team then determines if ductwork needs to be cleaned and sanitized before sealing. We pressurize your ductwork system, including ventilation shafts, heating and cooling shafts and other ductwork, to determine the amount of leakage. Using our non-invasive technology, we seal the ductwork to ensure the building’s HVAC system can operate at peak efficiency. In fact, Aeroseal duct sealing often eliminates the need to replace entire ductwork systems.

Savings

1. Fan Energy Savings
2. Heat reduction savings (from turning down the fan motor)
3. Outside air savings (both in the summer and in the winter)
4. Peak demand savings (if applicable).

Measurements and Verification

The AeroSeal software tracks results in real time. The results are recorded, and a certificate of completion is printed showing before and after leakage amounts



Longevity and Sustainability

- ✓ Reduced maintenance and prolonged equipment lifespan
- ✓ Warranty will be equal to ESCO warranty to the owner
- ✓ Longevity studies exceeding 30 years or equal to the life of the building
- ✓ Helping facilities stay clean and green