



Aeroseal White Paper (Overview):

Benefits:

Aeroseal duct sealing is a patented technology for sealing visible, invisible, and hidden duct work in residential and commercial applications. Sealant is injected into the ductwork to seal leaks and works from the “inside out”. The benefits to the homeowner include reducing hot/cold spots and/or temperature differentials between floors, improved indoor air quality, and energy savings. Commercial application benefits save energy and costs associated with heating, cooling, and fan operation depending on building type.

Licensees:

Aeroseal is permitted, as a master licensee, to sublicense the Licensed Patents (Aeroseal duct sealing process) and Licensed Products (Aeroseal sealant material) under a License Agreement for Residential Field of Use for use by licensed dealers.

Applications:

Key Factors for sealing ductwork should be a standard energy conservation measure evaluated during design, construction, major renovation, or other HVAC projects. Residential and Commercial duct work (supply & return sides of system) and exhaust shafts.

DOE Ranking Criteria:

Federal energy savings, cost-effectiveness, and probability of success are ranked 0-5 with 0 representing the lowest ranking and 5 representing the highest ranking. The weighted score is ranked 0-100 with 0 representing the lowest ranking and 100 representing the highest ranking.

- ✓ Federal Energy Savings: 1.6
- ✓ Cost Effectiveness: 5.0
- ✓ Probability of Success: 4.3
- ✓ Weighted Score: 63

Specifications of Sealant Material

Internal installation of spray sealant shall be applied in a manner that meets manufacturer specifications, manufacturer installation instructions, as well as UL 1381, UL 181, UL 723 (ASTM E84), NFPA 90A and NFPA 90B.

Material: Vinyl Acetate Polymer

- ✓ Base for chewing gum, hair spray and water-based paints

- ✓ Low VOC Content during sealant process only.
- ✓ Rapid cure time
- ✓ Remains elastic
- ✓ No OSHA maximum exposure limit
- ✓ Warranty: 10 years-Residential, 3 years-Commercial
- ✓ Based on testing, sealant has an expected life of at least 40 years.

Compliance:

Aeroseal process can help achieve SMACNA DALT compliance, CEC Title 24 specifications, LEED and EnergyStar qualifications in residential and commercial applications. Aeroseal product is NGBS green certified product.

Energy Savings:

Energy savings varies based on weather occupants behavior patterns. However, based on actual results and utilizing energy management software, the following assumptions can be determined:

- ✓ Residential (duct work located inside the envelope): 5%-15% savings
- ✓ Residential: (duct work located outside the envelope): 10%-30%
- ✓ Commercial Exhaust: 1-3 year ROI
- ✓ Commercial Supply/Return: 7-10 year ROI

Retail Pricing:

Certified local dealers establish pricing based on a number of factors including but not limited to: type and location of duct work, accessibility to system and registers, type of application, and region of country. Average pricing for residential applications nationally (not including rebates/loans) is between \$1500 and \$2500 for a typical 2000 sq. ft. home.

Internal Application of Aerosol Duct Sealant:

Internal installation of spray sealant shall be applied in a manner that meets manufacturer specifications, manufacturer installation instructions, as well as UL 1381, UL 181M, UL 723 (ASTM E84), NFPA 90A and NFPA 90B

Preparation:

- ✓ As a precaution, dealer shall cover major electronics, pianos, paintings, furniture, and other valuable household belongings. Smoke alarms near any areas of potential leakage shall be covered
- ✓ Prior to sealing, all supply boots shall be blocked with closed cell foam blocks and temporarily sealed, all return grilles shall be blocked and sealed, and equipment shall be completely blocked from duct system in both the supply and

return plenums. Additional equipment, such as an ERV, shall also be blocked from the duct system

- ✓ When there is potential for overspray in conditioned space or high duct leakage, supply and return sides of the system shall be handled as separate applications. Dealer shall segment duct system into multiple sections as needed
- ✓ Holes and gaps greater than 5/8 inches shall be sealed with a compatible backing and mastic
- ✓ Turn on system fan control and perform a walk-through to ensure that all supply boots and return grilles are blocked and air is not escaping

Installation:

- ✓ Scrubber fans with air filters shall be operating at the following locations: (i) near the injection point area, (ii) living areas of home, and (iii) any areas of anticipated overspray
- ✓ Dealer shall begin installation with pump speed inside the fan box at its lowest setting
- ✓ If overspray or major leakage is noticed, dealer shall immediately stop sealing work and identify major leaks. Major leaks shall be sealed per industry standards.

Post Installation

- ✓ Dealer shall remove blocking from supply boots, return grilles, and at equipment
- ✓ Dealer shall manually seal all boots and equipment with anti-microbial, silicone caulk or mastic
- ✓ Dealer shall return the residence and its contents to the condition they were in prior to the installation. Clean-up work and repairs shall be performed as needed
- ✓ Dealer shall submit a Certificate of Completion indicating reduction in duct leakage

Dealer shall clean and maintain equipment per manufacturer's recommended guidelines.

Commentary (non-binding): Additional steps that may be taken to ensure consistent applications include: use additional fans to pressurize the room, section off large returns, use additional scrubber fans or box fans with filters to move air, increase the frequency of safety walk-throughs, maintain at least one man per interior floor to monitor installation progress and watch for leakage.