



Case Study

New York State Medical Facility

New York State Medical Building Improves HVAC Performance, Saves Energy Using Aeroseal

Aeroseal Worked with ESCO and Facilities Staff to Improve HVAC Performance and Energy Efficiency at a New York State Medical Building

A good energy services company (ESCO) is always on the lookout for innovative energy conservation measures (ECM) to save clients' money. They have a lot of measures to choose for any given project — assessing operating budgets, reviewing overall building performance, and evaluating energy usage are just a few.

Too often, ESCOs overlook duct sealing as an ECM. When in fact, sealing air leaks in ductwork not only improves energy efficiency with quick payback, it also services as a retro-commissioning measure (RCM) to improve the health, safety, compliance, and HVAC performance of building infrastructure.

Aeroseal was asked to conduct a preliminary analysis of the 100year-old+ medical facility. The facility manager knew the hospital had airflow issues, and a potential for significant energy savings and improved HVAC performance. But how much savings would sealing the air duct system using Aeroseal deliver? And how viable would it be to do the work in a 24/7 hospital environment?

Both of these questions were answered affirmatively, and the results were outstanding.

Proprietary Energy Modeling

After an inspection of the ductwork and static pressure testing, Aeroseal had the data it needed to make its energy savings and return on investment (ROI) estimations using its proprietary Aeroseal ductwork energy savings model.

The ESCO and facility management for this project highlighted how “the veracity of Aeroseal’s energy model and the leakage rates the project crew was able to obtain through the computer-controlled test-and-seal process gave us more confidence that the estimated savings would be on target.

Watching the process, it was less about typical guesswork (associated with manual sealing) and more about experienced testing and extrapolations. It was backed up with a guarantee that we would get the level of ROI estimated by the final calculations.”

However, estimated energy savings were only half the battle. The duct sealing also had to be performed safely with little to no disruption to the hospital’s day-to-day operations.



PROJECT OVERVIEW

New York State Medical Facility

LOCATION

New York, NY

AEROSEAL CONTRACTOR

Aeroseal, LLC

GOAL

Reduce duct leakage for substantial energy savings and better HVAC performance

BEFORE AEROSEAL

29,836 CFM of leakage

AFTER AEROSEAL

870 CFM of leakage

RESULTS

Seal ductwork to 97% leakage reduction; Save \$22,694 in annual energy usage/costs

*Cubic feet per minute



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Verifiable,
Guaranteed Results

After reviewing the patented Aeroseal process, including safety, longevity, results, and impact on their operations, hospital administrators gave the green light. The Aeroseal team implemented its project plan to seal the five separate duct systems, consulting with hospital personnel every step of the way.

Staff from each unit involved knew when and where the work was taking place well in advance. They received continual updates throughout the project and were kept abreast of any new developments as they arose. Effective and ongoing communication with the administration and the facility managers as well as the staff was key to project success.

Another big advantage of the Aeroseal system is that it makes the entire duct system easy to access. Sealing from the inside-out eliminates the need to tear down walls, expose ceilings or tear off insulation in order to access the leaks.

Not only does this account for the highly effective nature of Aeroseal compared to mastic/tape, it also eliminates the majority of disruptions associated with traditional duct sealing using hand sealing methods alone. Especially in a hospital environment, minimizing the risks associated with structural demolition was key.

Guaranteed, Verified Duct Sealing Results

When the project was complete, Aeroseal provided facility management with the Aeroseal Certificate of Completion, a detailed report showing pre-seal and post-seal duct leakage. The pre-seal leakage rate of 29,836 CFM (cubic feet per minute) was reduced to 870 CFM (97% leakage reduction).

Even better, the actual reduction was 4% greater than the originally modeled estimate. Using the Aeroseal certificate, the ESCO/facility manager was able to show his clients an annual cost savings of \$22,694. This savings was based on reduced air loss and lower fan speeds that can occur after sealing ductwork using Aeroseal. Bonus, payback for this project was anticipated to be less than seven years.

RCM + ECM, A 2-in-1 Solution for ESCO Projects

Beyond ECM, Aeroseal proved to be a successful retro-commissioning measure (RCM) for this ESCO project too. The sealing process provided immediate improvements to the comfort level within the hospital. Doctors and other staff members commented on the improvement that Aeroseal made to ventilation and temperature control.



Reduce Energy and Consumption Cost

Duct sealing addresses multiple sources of energy waste. For example, by reducing leaks 15%, fan requirements drop by 40% or more. This saves thousands of dollars every month.

Aeroseal increases HVAC fan efficiency and eliminates excess ventilation load to reduce energy costs. It is a verifiable and guaranteed way to offer energy savings with typical payback in three to five years.



Improve Indoor Air Quality

Leaks in the return duct allow dust and other contaminants to be sucked into the duct system and spread throughout the facility. And exhaust fans can't remove contaminated air from the building if there are leaks in the ventilation shaft.



Improve Building Ventilation

Leaky ductwork is the primary cause of ineffective building exhaust. In addition to causing problems with uneven and uncomfortable temperatures, this can lead to higher energy costs, and added maintenance costs.



Meet Code and Spec

As duct leakage specifications get tighter and tighter, Aeroseal is specified as a routine component of commercial projects. Our consistent results will take you from hoping to knowing that you'll meet code requirements – the first time.



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There were two primary things that made this project such a success. First, flexibility. The Aeroseal team knew they couldn't just come in and shut down equipment or section off the hospital to get their work done. Second, was planning. The preparation put into this project before the sealing even began was extraordinary and reflected the team's understanding of the special requirements demanded by this unique environment. All of the advantages of the technology itself, implemented by a team that understood and met the unique requirements of a hospital environment made this a tremendous success.

ESCO Facility Director

Aeroseal has four different models to calculate duct leakage and inform energy savings on your project.



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