

= CASE STUDY=

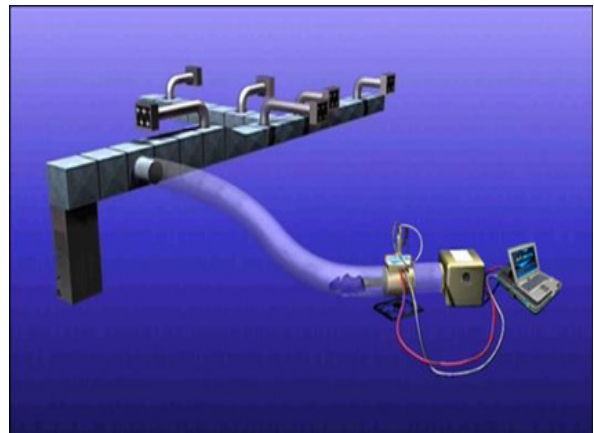
INNOVATION AND COORDINATION PROVE KEY TO FLAWLESS

DUCT SEALING PROJECT AT NEW YORK STATE MEDICAL CENTER

Hospital Undergoes Energy-Saving Retrofit
Without Disruption To Facility's Daily Operations

A good ESCO is always on the lookout for new ways to save clients money. Assessing operating budgets, reviewing overall building performance and evaluating energy usage are just par for the course, as ongoing attempts are made to identify cost-saving options. And that means keeping abreast of innovations in building science that may lead to new energy-saving opportunities.

So when the manager of a large ESCO first sat down with Bobby Seals, AeroSeal's director of national accounts, to discuss the energy-saving strategies being implemented at a major New York State medical center, he had already heard about aeroSeal technology and its unique approach to duct sealing. In fact, the company had already successfully used aeroSeal to seal ductwork and reduce energy waste during other building improvement projects, but this facility was a whole different ball game.



Duct sealing from the inside, with minimal disruption to the hospital's 24/7 operations.

AeroSeal came to New York and did a preliminary analysis of the 100+ year-old medical center. The manager was aware that the hospital had air flow issues, and that indicated targets for potential energy savings. Now the question was *how much* savings would aeroSealing the ductwork provide and how viable would it be to do the work in a 24/7 hospital environment.

IN BRIEF

Building: Hospital / healthcare facility

Where: State of New York

Sealing Consultants: Aeroseal LLC

Objective: Reduce duct leakage for substantial energy savings

Before Leakage Rate: 29,836 CFM

After Leakage Rate: 870 CFM

Reduction: 28,966 CFM

Percentage: 97% reduction

Annual Savings: \$22,694

To ensure an accurate estimate would allow facility management to confidently forecast energy savings, Aeroseal used a proprietary modeling system that incorporates a number of extenuating factors (Figure 1). After a close and thorough inspection of the duct systems and sample static pressure testing, Aeroseal had the raw data they needed to make its calculations.

“The veracity of Aeroseal’s energy model and the leakage rates they were able to obtain through computerized testing gave us confidence that the estimated savings would be on target. Watching the process, we felt it was less about typical guesswork as it was about experienced testing and extrapolations – and it was backed up with a guarantee that we would get the level of ROI estimated by the final calculations.” – ESCO/facility management.

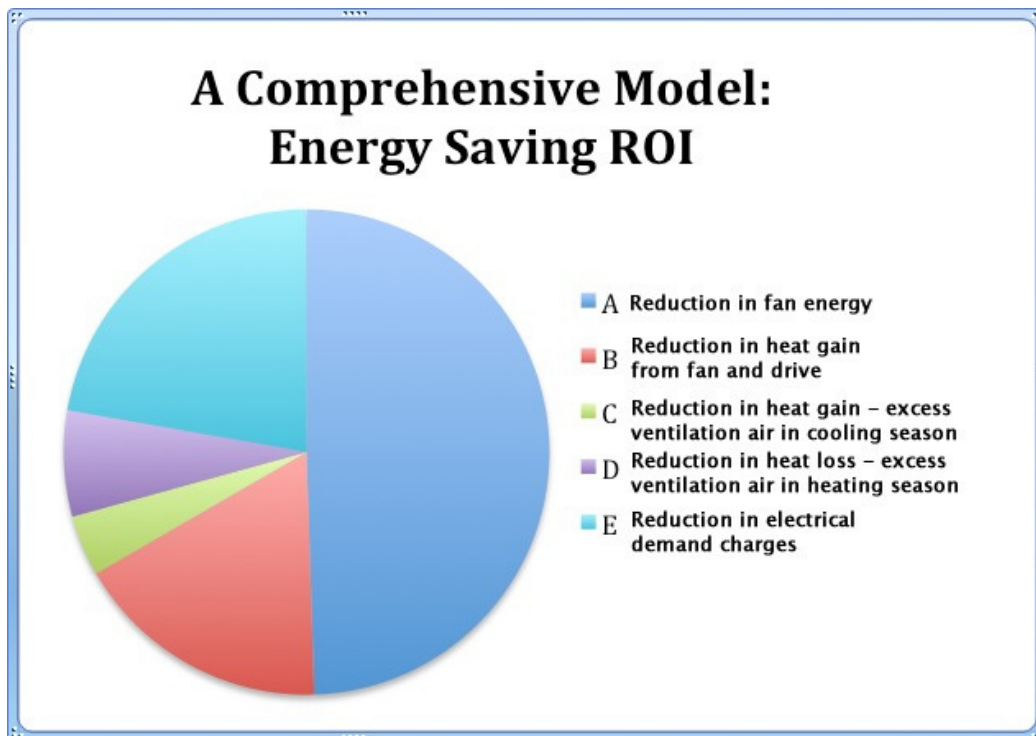


Figure 1

Armed with this detailed information, the facility manager approached the medical center’s administrators with a recommendation that they aroeseal five separate duct systems within the facility. It was now up to Aroeseal to convince everyone involved that the work could be done with minimal interruption to the facility’s day-to-day operations.

“Energy savings is only part of the equation. We want to consider any project that will provide a sufficient return on investment, but before we commit to a project, we need to also consider its logistical ramifications. Clearly, the level of disruption or issues that may compromise the health or safety of our patients or staff can put an immediate halt to any project.” – facility director

Over the course of several meetings, Aroeseal shared details about the aroesealing process with both facility management and hospital staff. The hospital’s administrators reviewed MSDS documents that confirmed the innocuous nature of the sealant. They also reviewed a number of case studies that Aroeseal provided of other medical facilities where the aroeseal technology was used. With their client’s approval to move forward, facility management gave Aroeseal the green light to proceed.

Preparation

Over the next few months, the Aroeseal experts conducted research on the facility’s mechanical systems, constructed a plan of attack and consulted with hospital personnel.

Using aroeseal technology to seal the ductwork had a number of significant advantages over traditional duct sealing methods. Applied as an aerosol mist, the sealant is blown into the interior of ductwork that has been temporarily segmented into specific sections.



The sealant doesn’t coat the duct interior but accumulates primarily in and around the leaks.

Rather than coating the entire inside walls of the ducts, the sealant particles remain suspended in air until they are drawn to the various leaks. The particles then stick to the edge of the leak and then to other particles until the entire hole is completely filled from the inside.

One of the biggest advantages to this approach 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 aroosealing when compared to tape or mastic, but it also eliminates the majority of disruptions associated with traditional duct sealing activity. In the hospital environment, minimizing the risks associated with such structural demolition was key.

“Making sure everyone – from administrators, to doctors and other hospital staff were comfortable with what we were doing, was vital to ensuring everything went smoothly. Once everyone understood the process, a day-to-day schedule was developed.” – Arooseal contractor

Hospital staff from each unit involved knew when and where the work was taking place well in advance of any activity. They received continual updates throughout the project and were kept abreast of any new developments that might have arisen. Effective and ongoing communication with the administration and the facility managers as well as the staff was imperative to the project’s success.



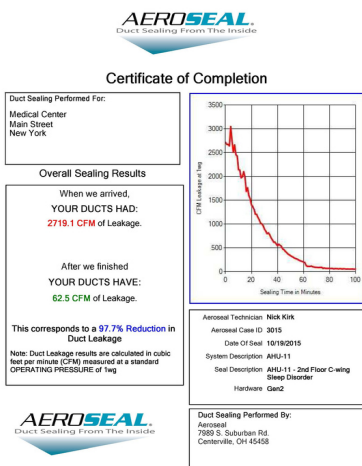
Ceiling spaces were depressurized – sealant was drawn directly to filters.



Color coding the various duct systems helped with project coordination efforts.

Results

The sealing process itself took just fourteen days to complete. At the end of the project, AeroSeal provided facility management with a detailed report of the results. Data taken before, during and after the sealing project showed an original leakage rate of 29,836 CFM (cubic feet per minute) now down to a low 870 CFM. This represented a 97% reduction - 4% more than the originally modeled estimate. Based upon the report provided by AeroSeal, the facility manager was able to show his clients an annual cost savings of \$22,694, based upon reduced air loss and lower fan speeds. Payback for the project would be well under seven years.



Certificate of Completion

Aside from cost savings, the sealing process provided immediate improvements to the comfort level within the building. Doctors and other staff members commented on the positive change that the aroesealing had on ventilation and temperature control.

Equally important to the success of the project, was the AeroSeal team's ability to meet the highly individual needs of the medical center.

“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

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