

≡ CASE STUDY ≡

HUGE ENERGY SAVINGS PROVE TO BE A SLAM DUNK FOR FEDERAL GOVERNMENT BUILDING IN SIOUX FALLS, SD

A Weekend Duct Sealing Project Yields Thousands Of Dollars In Reduced Energy Costs

The Houwman building in downtown Sioux Falls, South Dakota has been witness to a lot of transformations over its 88-year history. About a year ago, the building's current owners hired TAB Systems Inc. to do some mechanical maintenance on the three-story structure. The initial work helped improve the performance of the building's two HVAC systems, but TAB knew that leaks in the ductwork prevented them from maximizing HVAC efficiency. At the time, sealing those leaks would have required tearing down and then rebuilding the firewalls that stood between the ductwork and the sealers. Not only was this an enormously expensive proposition, but it also would have had an irreversible impact on a structure that has become a part of the city's history.

In Brief

Building: Houwman Federal Building

Location: Sioux Falls, South Dakota

Aeroseal Contractors: TAB Systems Inc.

Goal: Reduce Energy Costs

Before Aeroseal: 2,849 CFM of leakage (total)

After Aeroseal: 379 CFM of leakage

Results: Reduced leakage by approximately 87%; which resulted in a 56% reduction in the cost for ventilation and 31% reduction in the cost to heat and cool the building.



Since that time, TAB Systems has become a qualified Aeroseal duct sealing representative. Armed with this new technology that seals ducts from the inside, they went back to the building owners and showed them how their ductwork could now be effectively sealed without having to disrupt a single wall. They assured the building owners that in addition to saving energy, aerosealing the ductwork would improve the overall indoor comfort of the building as well.

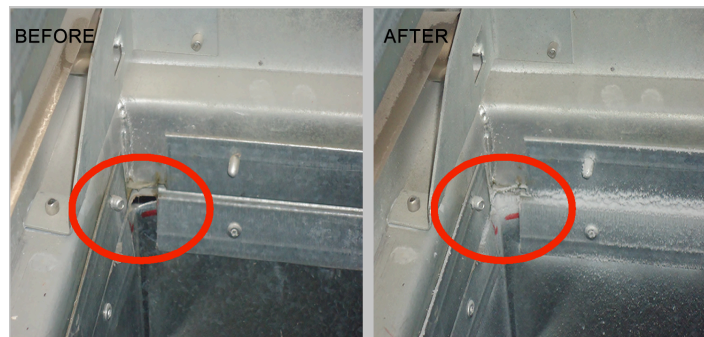
It took TAB Systems one weekend to effectively seal the ductwork of the two systems. This had a dramatic impact on overall system efficiency, slowing down the variable frequency drives and reducing fan speed requirements. When the tenants returned on Monday, everyone instantly noticed that the building was a lot quieter. Some wondered if the heat was even turned on. More impressive, calculations showed that the building owners would now be saving about \$1,290 each year in overall energy cost.

“First, it quieted the system - our tenants noticed the difference right away. In addition, it reduced our gas bill with more efficient heating and cooling. More significantly, it reduced the load on the system’s two turbo fans, the reheat coil and air chillers, saving us a lot on electricity. To me, aroeseal technology is revolutionary for both retrofit projects like this, and for new systems. There’s just no way anyone can expect to get a tight seal on a manually constructed duct system. By aroesealing from the start, you’ll make sure you are getting the air to go just where it’s supposed to go – a critical component of overall operating cost savings. On a scale of 1 to 10, I would give this whole experience a 10.”

Grant Houwman
H4j1 Development Companies LLC
Houwman Federal Building, Sioux Falls, SD

“Along with providing an additional revenue stream, offering aroeseal provides us with a real competitive advantage against other test and balance service providers in the area. We know we have 20-years worth of customers that we can now go back to and offer a service that will add real value to their buildings. I expect that in a short time, the duct sealing portion of our business will be as substantial as our test and balancing services.

Paul Ronken
TAB Systems Inc.
Sioux Falls, SD



Aroeseal – The Technology

In the aroeseal process, the sealant doesn’t coat the duct interior but instead, concentrates around the leak. An aerosol-mist of sealant is blown throughout the interior of the ductwork. The microscopic particles of sealant remain suspended in air until they reach a leak. Here they cling to the edge of the hole and then to other sealant particles until the leak is completely sealed.

- Developed at Lawrence Berkeley National Laboratory in 1994.
- Research for aroeseal technology was partially funded by the U.S. Department of Energy.
- Aroeseal is delivered as a non-toxic aerosol mist that seeks out and plugs leaks.
- Aroeseal has proven to be 95% effective at sealing air duct leaks.