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## Aeroseal Saving Public School District \$45K Annually

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It seems that our public schools are constantly in panic mode, looking for ways to save money and allocate limited resources. So it's particularly exciting to tell you about a project where aerosealing just a single elementary school building is saving one school district about \$45,000 a year. That's a lot of bake sales! In addition, it turned the school superintendent into a hardened evangelist for aeroseal technology and he now tells other school administrators about the savings potential that duct sealing offers.

Ever since West Elementary School, the K-5 branch of the Licking Heights school district opened its doors about seven years ago, getting heat to all wings of the east Columbus, Ohio school building was a problem. In fact, it could get so bad that some of the teachers in the distant classrooms regularly wore winter coats while teaching class. The kids often had on hats and mittens.

Every year, the temperature would take a dive, the complaints would come in and the engineers would do what they could to fix the problem – but to no avail.

What really got the attention of the school district's new superintendent, however, was the building's huge monthly utility bill. No one could explain why the utility bill at West Elementary was more than double that of its twin building just down the road.

"We brought in Heapy Engineering to commission the buildings and do a thorough evaluation of everything that might effect performance," said Dr. Philip Wagner, superintendent, Licking Heights School District. "What we discovered was that we had some real issues with the ductwork at West Elementary. Testing results indicated that the HVAC system was running at about 6% of its capabilities. A thermal scan of the building along with other investigatory activities clearly showed we were losing most of our heated air through leaks in the ductwork."

With the cause of the problem identified, the search began for a solution. Proposal requests went out to a variety of HVAC and mechanical shops. In the end, the school board listened to three presentations from three different firms offering three different solutions.

One of the options presented to the school board involved the use of Aeroseal duct sealing.

"I was familiar with Aeroseal from a duct sealing project I was involved in at Ohio State University," said Tony Furst, solutions engineer at Bruner Corp, one of the presenting HVAC and mechanical solutions providers invited to submit a proposal. "I saw first-hand how well it worked sealing the ductwork at one of the university's new dormitories and I knew it would be the ideal solution for Licking Heights."



The next step was to convince Dr. Wagner and the rest of the school board that AeroSeal was the right choice.

"Honestly, for me, AeroSeal technology was originally the dark horse of the three options presented to us," said Wagner. "My experience has taught me that if something sounds too good to be true, it probably is. I was told the AeroSeal approach would take days – not months to complete. It would be virtually non-disruptive, and it was about half the cost of the other options. All this sounded good – but I had never heard of this technology before and it sounded to me to be more of a temporary fix rather than a permanent solution."

To convince Wagner and the other board members otherwise, Furst, with the assistance of AeroSeal, shared with them examples of other successful AeroSeal projects.

"What really sold me was a strong guarantee and even stronger references from other school administrators that previously had enjoyed great success with the duct sealing technology," said Wagner. "In the end, we decided to give it a try."

With contract in hand, the Bruner AeroSeal team arrived on the first Saturday kicking off the Christmas holiday season. The three-man crew had about two weeks to complete the entire project before children returned to school. They began by dividing the 50,000 CFM duct system into 12 sections to be sealed individually.

### **The Results**

There are several ways to talk about results on a project like this. First the numbers:

Before aeroSealing began, the system's two fans were running at 100%, 100% of the time. Not only did this require a significant amount of energy, but the sound caused by the fan was so disruptive that there were classrooms that were underutilized because of the distracting noise.

After AeroSeal, the fans were turned back on and adjusted to about 60%. During one of the coldest winters in Ohio's history, the fans have yet to be turned up more than this original 60 percent.

It is estimated that the school will save about \$11,266 /year on electricity alone - just from the reduced fan usage.

On the supply side of the system, the school estimates a leakage reduction of about 20,000 CFM. Computer-calculations show that in several cases, a single section of ductwork realized a reduction of 3,000 CFM or more. A similar pattern was found on the return side of the system with leakage rates being reduced by as much as 3, 111 CFM – a total reduction of 37%.

By reducing duct leakage, it is estimated that the school will save 944 MCF/year (volume of 1,000 cubic feet (cf) ) in natural gas for a cost savings of another \$34,000/year. The school calculates that the entire project will pay for itself in about three years. After that, they are looking at an annual budget savings of about \$45,000 for energy costs.

"We estimate that in the seven or so years that this building has been in operation, we've lost well over half a million dollars in wasted energy costs," said Wagner. The AeroSealed ductwork will reverse this trend and begin putting money back into the budget."

But what about other measurements of success?

"When we went back to visit the school, we were greeted as heroes," said Furst. "Several teachers told us that they were comfortable in their classroom for the very first time. A class of first graders thanked us for making it warm."

According to Wagner, the results were immediately noticeable. The treated air now reaches all the rooms. Teachers are no longer giving lessons with their coats on. Children aren't wearing their hats in the classroom. And the fan isn't running nearly as long or as hard as it used to, so the noise problem has disappeared.

"This project was one of the smoothest projects we've ever had done at this school," said Wagner. "It was completed on time and within budget. We needed a safe a secure space ready for the return of children after the holidays and we got it. It's met every expectation and then some."

Due to the success of this initial project, the school district is looking at having its other buildings aeroSealed. While West Elementary was particularly problematic, tests revealed that each and every building in the school system could benefit from having its ducts sealed.

"I entered this project a skeptic," said Wagner, "but finished it a complete believer. I am even considering having my house AeroSealed."