New Duct Sealant May Cure Leaky Ducts – And Lower Home Energy Consumption

BY TRISH HOLDER ON FEB 25, 2012

I'd like to speak to you about something most *ladies* don't like to discuss: Air leaks in your home's ductwork.

Now, I know this is not something we talk about at parties, but the fact is leaky ducts are a common affliction and a major source of energy loss in homes. Homeowners pay dearly to heat and cool the air traveling through their home's air delivery system. Unfortunately in many homes a significant amount of that air escapes through duct leaks before it ever reaches the living space.

Finding duct air leaks and then fixing them (as opposed to replacing every duct run in your home) has been an ongoing challenge for the HVAC industry. First, you can't fix a leak if you can't *see* it, and even if you can, slapping some duct tape on has proved an imperfect and temporary solution.

A more lasting solution might involve a product/process I encountered a few weeks ago at the AHR Expo in Chicago: Aeroseal.

Aeroseal Duct Sealant Technology

Aeroseal technology was developed at the Energy Department's Lawrence Berkeley National Laboratory with partial funding by the Department of Energy (DOE) and the Environmental Protection Agency (EPA), which gives the product a little added credibility in my opinion.

Aeroseal is a *duct sealant* that is applied as an aerosol mist that travels throughout the home's ductwork, accumulating in the area of a duct leak until the hole is sealed. Certified applicators use a machine patented by Aeroseal to apply the product, which, when dry, reminds me of coagulated hair gel. The company says the sealant it is totally non-toxic, and, in fact, is made with the same key ingredient as chewing gum.

I saw the demo machine at AHR and I have to say, it didn't look like much. But really, it is a pretty simple process. You are basically spraying this hair gel like substance into the ducts. How fancy does it have to look or be? The question I had was: *How does the sealant know where the leaks are*?

The answer is simple physics. When the material is sprayed into the duct, the small aerosol particles are kept in suspension until the air stream makes a sharp turn to exit through a leak. The hole itself causes this change in direction. At that point the particles collide with and adhere to the leak edges until the hole is all sealed up.

(I'd love to see a cartoon animation of this, wouldn't you?)

Prior to this process, the Aeroseal applicator measures the duct leakage in the home using the same, patented equipment and controller. Integral software measures the actual leakage in the duct. Next, Aeroseal is pumped through the duct system, a process you can actually observe via the controller computer screen where a graph shows the steady decline in leakage as the holes get sealed.

Cost vs. Savings

So what does it cost and what is the potential payback? Cost actually depends on the complexity of the HVAC system, but the company says that costs typically run between $1,200.00 and $2,000.00, with an average annual energy savings of $650.00 to 800.00. I'm guessing you can pull the plug on the process if you find your ducts are tight as Tupperware. However, if you are like most homeowners, this is probably not the case.

I look forward to following the progress of this company. The concept is so simple that I believe it has a good chance of intriguing more homeowners than confusing them. Most importantly, it might just get homeowners thinking and talking about their ductwork — the home's equivalent to the human cardiovascular system.

tinagleisner
February 28, 2012 • 10:10 am

Trish, This is a very interesting product, or really it's installation, as the biggest problem with leaky ductwork is lack of access to the problem areas. Found a good video on the product, http://www.youtube.com/watch?v=J6UZfXKTIII&noredirect=1 … and will be checking it out further.

Reply

Kenneth P. Larson
March 26, 2012 • 11:17 am

One of the most important factors is to get the duct system within the heated or cooled envelope.. so if it does leak it goes into the temperate spaces.. double wide Modular homes that have all the duct work under the house even in a skirted area provides a haven for critters to spend the winter… in comfort…They chew new holes each year… so design the system so, for example, return ducts do NOT circulate through attic spaces that turn to be 140 degrees in the summer… the conductive loss can be considerable too…. If putting duct systems under a concrete slab, make sure the under slab area is perfectly dry…. and the surrounding concrete of the duct system is integral with the floor slab.. so that any lost heat or cool is conducted to the conditioned space..

Reply