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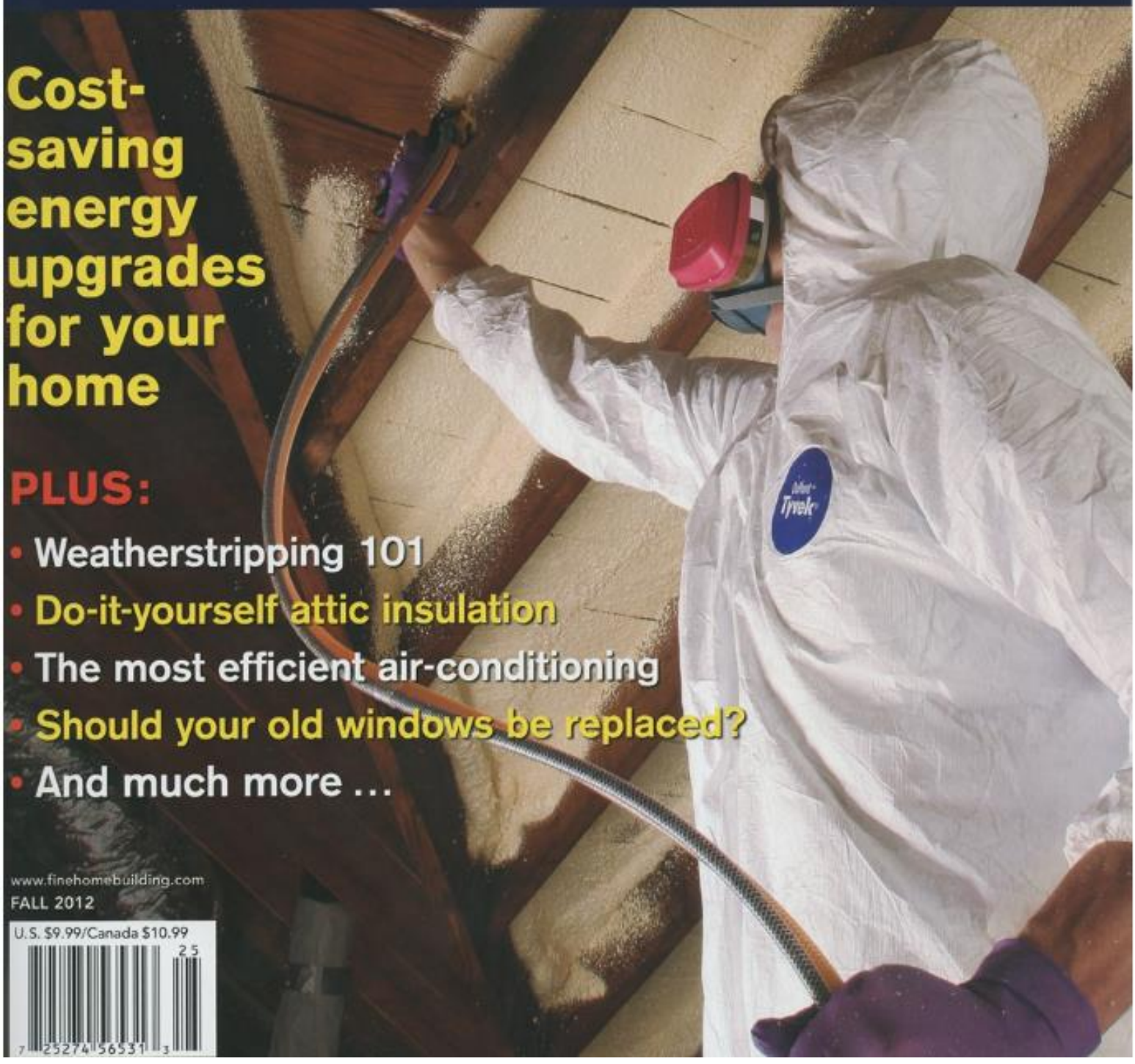

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# Q&A SPOTLIGHT

"Q&A Spotlight" features an in-depth look at home-energy-related questions posted in our readers forum at Green Building Advisor, *Fine Homebuilding*'s online hub for energy-efficient and sustainable building information. Go to GreenBuildingAdvisor.com/qa to ask your own question or to find out what others are saying about saving energy.

EDITED BY SCOTT GIBSON

## Tracking down leaks in forced-air ductwork

Leaky ducts are an all-too-common problem causing significant energy losses and poor indoor-air quality. Mark Renfrow knows that. Duct tests at his 3400-sq.-ft. home revealed a high level of leakage. A contractor applied mastic to the accessible ductwork, but many parts of the system were not so easy to reach.

"We retested and got down to about 25% leakage, and at that point, the contractor said it was the best they could do," Renfrow writes in a "Q&A" post at Green Building Advisor. "The ductwork is all metal with insulation," he adds. "We have a lot of ductwork. Tearing all the old insulation off to seal the joints seems excessive when I don't really know what is causing the leakage. It may be in inaccessible runs, most likely in supply areas."

Renfrow has two questions. First, can ducts be sealed effectively from the inside? Second, why can't mechanical contractors do a better job of isolating the source of leaks?

### Where to get the right kind of help

One hurdle to improving the performance of forced-air systems is finding a professional who's fully up to speed. Renfrow says he talked to two HVAC contractors who didn't know how to isolate the problem. "In fact," he says, "they shrugged their shoulders and said that much leakage is normal."

"The average person can barely understand duct leakage and the cost implications," reader David Meiland writes. "And many HVAC contractors aren't up-to-date, either. The typical energy auditor can barely sell their services, much less the upgrades a typical house needs, partly due to homeowners' short-term mentality, along with the lack of ready money for improvements."

Danny Kelly, a builder in North Carolina, recommends searching the Building Performance Institute's database of certified professionals (www.bpi.org) for one with the envelope-professional designation. He also suggests looking for an expert through the National Comfort Institute (www.nationalcomfortinstitute.com).

### The Aeroseal approach

Given the difficulty of removing duct insulation to seal all connections from the outside, tackling the problem from the inside of the system is appealing. The company mentioned in this thread is Aeroseal (www.aeroseal.com). According to the company's website, the process was developed at the Lawrence Berkeley National Laboratory with funding from the U.S. Environmental Protection Agency. The technology is now licensed to Aeroseal.

Renfrow found a single contractor in the Dallas-Fort Worth area who uses the Aeroseal process and was given a rough estimate of $4000. According to Brad Brenner, who works with the company, the cost to an average homeowner is between $1100 and $2000. He also says that the process typically reduces heating and cooling costs by about 30%, allowing homeowners to save between $250 and $850 a year on utility bills. "It's a fairly quick and unobtrusive procedure—in and out in a day."

***Inside job.*** *Aeroseal uses a process in which a nontoxic mist is sprayed inside the home's ductwork system. The company says that the aerosol finds and seals even the most inaccessible leaks.*

### HOW OUR EXPERT SEES IT

**It's really hard to pinpoint leak locations in duct systems. The tests described are all good for determining which side of the system has leaks, but not for locating them.**

**Aeroseal works; it is an effective interior sealing method for smaller leaks. The Aeroseal application, however, has trouble spanning and sealing leaks larger than ⅝ in. Studies have shown that the biggest bang for the buck is meticulously sealing (with duct mastic and fiberglass-mesh tape) the supply and return trunks as well as the plenum. Access is generally easy for these three.**



Photo this page: courtesy of Aeroseal. Photos facing page: top, Dan Thornton; bottom, Daniel Morrison.