

Duct Tape Disappoints in Tests

Ah, duct tape. You were the last thing I could count on and now I find out you're not up to the job? Your magic has been immortalized in tales about curing warts and making guitar straps and repairing NASA equipment. Remember the time I made a wallet out of you? All these years, I ran to you when I was in a jam, only to find out from some government lab test that my mailing tape is better?

But alas, even you have your own Kryptonite. How ironic that your vulnerability is ducts! Chronicled below are the true test results of duct tape under simulated heating, ventilating, and air conditioning (HVAC) settings, and why most building codes prohibit its use on ducts.

The End of an Era

You can thank Max Sherman and Iain Walker of the Department of Energy's National Laboratory in Berkeley for illuminating the fact that duct tape does not seal ducts very well or for very long. For three months they toiled night and day, testing duct tape, clear plastic tape, foil-backed tape, mastic, and injected aerosol sealant in HVAC systems (www.lbl.gov).

"We tried as many different kinds of duct sealants as we could get our hands on. Of all the things we tested, only duct tape failed. It failed reliably and often quite catastrophically," says Sherman. "On the other hand, while duct tape may not last long as a sealant, in the short run it is strong, sticky, and fairly easy to use."

To test durability, Sherman and Walker developed an aging test to imitate the cycling of an HVAC system from night to day and winter to summer. Eight identical "finger joints" (a standard method of fitting a smaller duct into a larger plenum by means of metal flanges, leaving gaps) are tested concurrently, each sealed with a different product.

The team also carried out a bake test in which the sample joints were baked at temperatures of 140 to 187 F. Many A/C units and duct systems in the U.S. are placed in the attic, "just about the worst place to put them. Attic temperatures can easily get up to 150 degrees F," says Walker.

The researchers tested 19 different sealant samples in the aging rig and 13 in the baking rig. Sadly, in both kinds of tests, duct tapes were the only sealants that failed.