

2877 Euclid Ave. South Williamsport, PA 17702

[larmanda@comcast.net](mailto:larmanda@comcast.net)

## TESTING FOR DUCT LEAKAGE

Why be concerned?

- Tight ducts will likely reduce customer complaints of cold or hot rooms
- Under the 2009 IRC Chapter 11 N1103.2.2, duct testing is an Air Leakage Testing Option
- Third party verification for client/customer lends credibility
- Improved indoor air quality
- Reduce the likelihood of moisture forming inside wall cavities from unbalanced air distribution system

What is a duct tester? A device that is used to pressurize a duct system to find leakage to the inside or the outside of the building.



Photos by The Energy Conservatory

Duct Leakage can contribute to house infiltration and exfiltration air leakage, when the furnace fan is operating, by 30% to 200% creating drafts in homes and high utility bills.

Duct Leakage in the return side of the system located in the combustion appliance zone can contribute to backdrafting of combustion equipment .

**2009 IRC N1103.2.2:** Ducts tightness shall be verified by 1) Post-construction test, or 2) Rough-in test.

1) Post construction test

- 1) Duct Leakage Limits: Post construction test: Leakage to outdoors  $\leq 8$  cfm per 100 ft sq. of conditioned space.
- 2) Total leakage  $\leq 12$  cfm per 100 sq. ft of conditioned floor space

2) Rough-in test

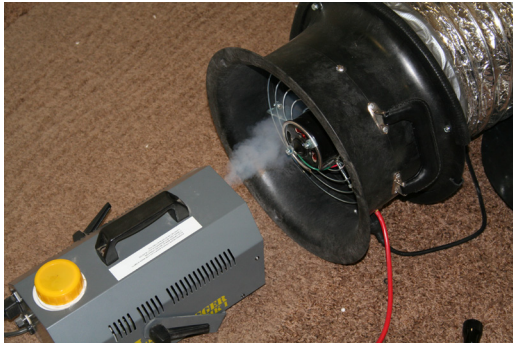
- 1) Total leakage  $\leq 6$  cfm per 100 sq.ft. of conditioned floor space
- 2) If air handler is not installed the total leakage  $\leq 4$  cfm per 100 sq.ft. of conditioned floor space.
  - a. A significant amount of leakage can occur at the air handler, plenum and filter box.

This option makes the allowable leakage rate more stringent.

## Contractor Advantage

If you want consistently good work from your HVAC contractors have your duct work tested. When you show your installer the results, your contractor's work it will get better. They may not even know their systems leak and your testing helps them learn. Having a ductwork test done before the drywall is installed heads off problems. After drywall is installed repair becomes much more difficult and costly.

By using a theatrical fog machine the technician can locate duct leaks. Example: The homeowner complained that some rooms would not get warm enough to be comfortable. This new home duct system had excessive duct leakage as seen in the photo below. The crawl space was the warmest space in the home. If the return ducts had leaks, crawl space air would have been sucked into the house. This return leak would create a negative pressure in the crawl space. This negative pressure in the crawl space would bring in hot humid outdoor air creating the potential for mold growth on the floor joist.



# Duct Leakage to Outdoors

