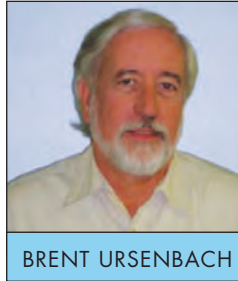


MECHANICAL CODE DISCUSSION

Duct Blaster — Duct Leakage Testing



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IN THIS ISSUE OF the *Pipeline* we'll revisit a subject discussed five years ago. Duct leakage testing is required on new duct systems, installed outside the thermal envelope of a home. The code now requires duct leakage testing for residential HVAC systems with air handlers and/or at least 25% of the duct system, measured by length, located in an attic, crawlspace or outside.

In other words, 75% of the duct must be inside the thermal envelope. The allowable leakage has been amended by the Legislature. The Utah state amendment requires the following:

Post-construction test: *Total leakage shall be less than or equal to 7 CFM per 100 square feet of conditioned floor area, when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. All registers and grills shall be taped or otherwise sealed during the test. Without amendments, the allowed leakage is 4 CFM per 100 square feet of conditioned floor area.*

A duct leakage tester or duct blaster

is a diagnostic tool designed to measure the airtightness of HVAC ductwork. A duct leakage tester consists of a

calibrated fan for measuring an air flow rate and a pressure sensing device to measure the pressure created by the fan

flow. The combination of pressure and fan flow measurements is used to determine the ductwork airtightness.

A basic duct leakage testing system includes three components - a calibrated fan, a register sealing system and a device to measure fan flow and building pressure. Supply registers or return air grills are sealed using adhesive tapes, cardboard, or non-adhesive reusable seals. The blower compartment or one return grill is left unsealed. The calibrated fan is then connected to that unsealed opening. Pressure is monitored in one of the branches of the ductwork while the calibrated fan delivers air into the system. As air is delivered into the

ductwork, pressure builds and forces air out of all of the holes in the various ductwork connections or through the seams and joints of the furnace or air-conditioner. The tighter the ductwork system (e.g. fewer holes), the less air you need from the fan to create a change in the ductwork pressure.

Obviously, it's critical to build a tight duct system, especially when the duct is

outside the thermal envelope. Leaking supply ducts throw conditioned air away, while leaking return duct will draw extremely hot air out of attic during cooling operation. Leaking ducts systems, when located outside the thermal envelope, also adds to the whole house envelope

leakage, where blower door testing occurs on the entire building envelope.

Major duct system leak locations include panned floor joist and wall cavities, coil to furnace and coil to plenum connections, line-set plenum penetrations, take-off dove-tails, and cleat connections. Sealing connections during installation, rather than after the duct system is completed will result in a tighter system. Check out duct blaster videos on YouTube!

Please remember your questions, comments and suggestions are always welcome. —Brent ■

