

# The Duct Man

HVAC Industry News You Can Use



**MYSTERY  
PHOTO**

Name the energy-saving equipment shown above to win a \$100 gift card to Longhorn Steakhouse!



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## Why You Should Measure Static Pressure on Every Service Call

One of the best diagnostic tools an HVAC contractor has at their disposal is the static pressure reading. Static pressure is a **measurement of resistance to airflow in system equipment and ductwork**, and a high pressure reading is a clear indicator that something is wrong within the system. HVAC contractors should measure static pressure with a manometer or magnehelic gauge as part of their regular service routine.

### Understanding Static Pressure

An easy way to explain static pressure to customers is through a blood pressure analogy. Every medical exam includes a BP reading because it provides a baseline of a patient's overall health and can indicate underlying health issues. Just as high blood pressure is bad for your heart, high static pressure is bad for your heating and cooling system.

In a system rated at 0.5" of water column, a corresponding static pressure can be equated to a normal blood pressure of 120/80. A static pressure reading of .75" in this same system would mean that airflow is restricted by a factor of 1.5, or the BP equivalent of 180/120. A measurement of 1.0" – twice as high as

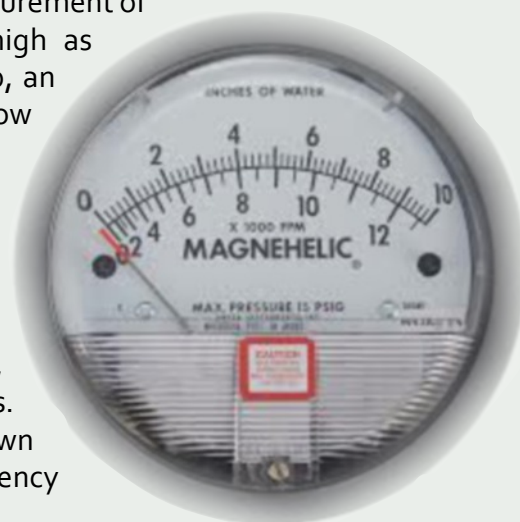
what it should be – would be akin to a blood pressure reading of 240/160, an extreme condition that would warrant admission to a hospital. Conversely, low static pressure, like low blood pressure, is a trouble sign, as well.

### Why Does Static Pressure Matter?

Once a customer has a basic understanding of static pressure, a technician can explain how ductwork problems and improper airflow can be detrimental to their HVAC system. Air flow restriction makes the unit work harder, which compromises system efficiency, raises utility bills, causes poor air distribution, and renders the system incapable of keeping up on extremely hot or cold days. Starved, overworked HVAC equipment is highly prone to frequent breakdown and premature failure. Even the most expensive, cutting-edge, high-efficiency equipment will never perform to its potential if improper airflow is an issue.

### Expanding Your Opportunities: Duct Renovation & Holistic System Repairs

Common issues that cause high static pressure include undersized return systems, duct blockage, closed dampers, improper transitions, offsets, and undersized or kinked flex duct. Low static pressure can result from leaking ducts or plenums, missing filters, low fan speed, or separated ductwork. If you've been successful in your communications, people who understand the ramifications of airflow problems will be receptive to correcting the root issues hindering their system.





## VRF Gaining Ground in Residential Market

Variable refrigerant flow, or VRF, an HVAC technology that has been commonly used throughout Japan, China and Europe since the 1980s, is one of the fastest growing segments of the U.S. commercial HVAC market. Now, fueled by high energy efficiency, flexibility, on-demand control, and quiet operation, VRF is taking off in the high-end residential market, as well.

VRF systems utilize inverter-driven compressors to modulate the flow of heated or cooled refrigerant to individual zones, allowing for precise, quiet, on-demand comfort control. Separate spaces in the same building can be simultaneously heated and cooled, and heat recovery from a cooled space can be repurposed to provide heating in another. Various industry statistics show that VRF systems are 25% to 55% more energy efficient than traditional systems. Large distribution fans, multiple chillers, boilers, piping and pumps are unnecessary in VRF systems, and ductwork is minimized or eliminated altogether, making them a popular choice for retrofit and renovation.



A number of manufacturers offer VRF systems for residential applications here in the U.S. They are growing in popularity, though mostly in upscale homes due to a higher up-front cost. Over the lifetime of the system, however, the initial expense is offset by lower energy bills and greater reliability. Residential VRF units are smaller and quieter than traditional systems, and they are even more energy efficient than their commercial counterparts. Continual improvements in the technology allow VRF systems to be installed in almost any climate, providing 100% heating capacity when outdoor temperatures are as low as -13°.

HVAC contractors should consider offering variable refrigerant flow systems as an alternative to traditional systems. Note that it is essential, though, that technicians are well-trained in VRF due to these systems' unique requirements.

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