

## THE DUCT MAN QUARTERLY

February 2025 | HVAC News You Can Use

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# UPCOMING WEBINARS

### **March Webinars:**

- Basic Electrical Understanding and Reading Wiring Diagrams
- Understanding Air Flow and Static Pressure and their Effects in an HVAC System

These FREE webinars are hosted by E.P. Homiek and instructed by an experienced electrical mechanical engineer.

### **Understanding and Taking Static Pressure Readings Can Help Transform Your Business**

Airflow in residential HVAC systems is often overlooked and rarely measured, yet it is the lifeblood of every system. The easiest way to determine airflow in an HVAC system is through static pressure measurement, which can be completed in just a few minutes.

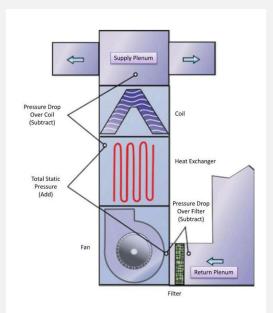
Static pressure (or total static) in residential HVAC systems should be 0.5 or 1/2 in/wc (inches of water column). When static pressure is too high, airflow decreases. When it's too low, this can indicate several problems, such as leaking or open ductwork. Both high and low readings can signal serious issues.

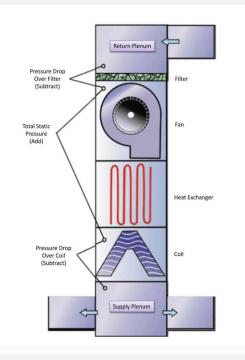
A helpful analogy to remember is that static pressure is similar to blood pressure - too high or too low could spell trouble. Just as a blood pressure reading of 120/80 is ideal for humans, a static pressure reading of 0.5 in/wc indicates a healthy residential **HVAC** system. comparison is particularly useful when explaining static pressure problems customers and discussing corrective necessary actions.

Surprisingly, as an engineer who has visited hundreds of problem projects, I've seen various HVAC companies'

contact information stickers on furnaces, but I've rarely encountered properly drilled holes for taking static pressure readings. This oversight is puzzling given the importance of these measurements.

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#### Static Pressure—continued from page 1

#### **Blower Performance**

Model	Motor HP	Blower Size	Temp. Rise		CFM @ ext. Static Pressure - in. W.C. w/Filter(s)*							
					.20	.30	.40	.50	.60	.70	.80	.90
FURNACE MODEL "A"	1/3	10 x 8	35-65	High	1518	1446	1366	1297	1219	1122	1003	834
				Med/Hi	1340	1298	1234	1182	1101	1018	903	752
				Med	1099	1084	1060	1019	952	883	783	709
				Low	942	935	896	868	829	760	651	553
FURNACE MODEL "B"	1/3	10 x 8	45-75	High	1390	1337	1270	1207	1138	1063	949	858
				Med/Hi	1230	1176	1137	1082	1012	931	838	718
				Med	1008	984	956	912	872	806	722	587
				Low	872	847	834	800	758	690	600	495
FURNACE MODEL "C"	3/4	12 x 10	35-65	High	1921	1888	1831	1759	1668	1624	1549	1445
				Med/Hi	1750	1720	1682	1661	1625	1494	1397	1327
				Med	1515	1491	1462	1421	1397	1330	1258	1185
				Med/Low	1315	1300	1255	1213	1188	1159	1103	1017
				Low	1033	982	962	652	906	851	804	721

\*Chart shown for illustrative purposes only. Please consult manufacturer's specifications for accurate productspecific data. Taking static pressure readings at the furnace is a straightforward process. We recommend investing in a good digital manometer, which is relatively inexpensive, or using a magnehelic gauge. As shown in the diagram, taking several static pressure readings - creating what's known as a static pressure map - will reveal any existing problems and their locations. It's worth noting that most residential HVAC systems operate under high static pressure, primarily due to restricted supply or return ductwork, or dirty/thick pleated filters.

The diagram demonstrates how static pressure readings can identify various issues, including excessive pressure drops across filters, clogged or dirty evaporator coils, and restricted or open supply or return ductwork. Remember that residential HVAC

systems, regardless of manufacturer, are designed for specific airflow and static pressure parameters. After taking static pressure readings, it's essential to compare them to a standard airflow chart.

For those interested in learning more about implementing static pressure readings during service calls, we recommend watching <u>"Static Pressure Testing and Mapping Demonstration: Home HVAC Duct Performance"</u> on YouTube.

Stay tuned for our upcoming free online static pressure webinar, open to all interested parties. Watch for the EP Homiek technical webinar invitation in your inbox.

### E.P. HOMIEK PROVIDES NO-WAIT CUSTOM DUCT FABRICATION

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