Measuring exhaust fan flow rates - Exercise

Begin by examining the Field Guide for the Exhaust Fan Flow Meter. (on the reverse side of this page) Connect the tubing as shown to the right side of the DG-700. In the correct MODE the DG-700 will measure flow in CFM on Channel B. Turn on the DG-700 and set the DEVICE, MODE, and determine the CONFIG to use by adjusting the gate on the flow metering pressure pan for the flow range you anticipate. Measure the flow in CFM from each fan with different ducting configurations. Record the results below.

Fan #1

____ CFM with no duct attached

____ CFM with elbow, 4" flex, and wall exit terminal

Fan #2

____ CFM with no duct attached

____ CFM with elbow, 4" flex, and wall exit terminal

if there is time, one more measurement of each fan

____ CFM with _____

____ CFM with _____

Be sure to adjust the gate on the flow metering pan to the lowest range capable of measuring the CFM. Be sure to adjust the CONFIG on the DG-700 to match the configuration of the gate position on the metering pan.

This ventilation effectiveness table from the ASHRAE standard could be useful, depending upon the fan control selected. Using this table, calculate the effective CFM from Fan #1 connected with duct, on a 12 hour cycle, and running with a 0.5 fraction on-time.

Effective CFM delivered = ____ CFM?

Ventilation Effectiveness for intermittent fans

Fraction on-time	Cycle Time, (hours) 0-4 hrs	8 hrs	12 hrs	24 hrs
0.1	**1**	**0.79**	**0**	**0**
0.2	**1**	**0.84**	**0.56**	**0**
0.3	**1**	**0.89**	**0.71**	**0**
0.4	**1**	**0.92**	**0.81**	**0.2**
0.5	**1**	**0.94**	**0.87**	**0.52**
0.6	**1**	**0.97**	**0.92**	**0.73**
0.7	**1**	**0.98**	**0.96**	**0.86**
0.8	**1**	**0.99**	**0.98**	**0.94**
0.9	**1**	**1**	**1**	**0.99**

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KBSI Field Guide: Pressure Pan & Exhaust Fan Flow

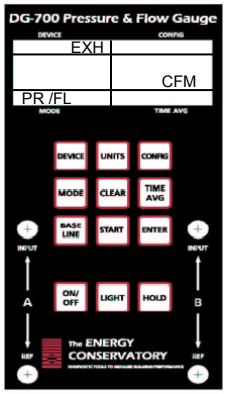
Equipment: Blower door, the DG-700, Pressure Pan, and Exhaust Fan Flow Meter™

Pressure Pan / Pressure Diagnostics

1. Prepare the house and install the Blower Door.
2. Turn on the blower door and establish a constant (house with reference to outside) pressure difference. (For example, cruise at 25 Pa.)
3. Feel for air movement through a partial door closure test of interior doors to quickly identify rooms and areas with greater air leakage.
4. Turn on the DG-700 and connect **Channel A** to a pressure pan with the reference tap open. Use the pressure pan to identify ducts, outlets, and locations that may have a pressure connection to outside. If the DG-700 displays more than ½ of the house/outside ΔP, the air-barrier is deficient, and the tested location is outside the primary air-barrier. If the manometer displays less than ½ the established ΔP, the tested location is within the primary air barrier. Record the interior features and surfaces that reveal pressure connections to outside, especially those that test more than half way outside the pressure boundary.

Exhaust Fan Flow Metering

1. Turn on the DG-700 and select the **Mode** PR / FL mode for measuring exhaust fan flow in CFM.
2. Set the **Device** on the gauge to **EXH**.
3. Connect the input tap of **Channel B** to the metering box and select the door position for any one of three flow ranges.
   a. Use door position E3 for flow between 10 and 28 CFM. Config - C3
   b. Use door position E2 for flow between 21 and 59 CFM. Config - B2
   c. Use door position E1 for flow between 44 and 124 CFM. Config - A1
4. Set **Config** on the gauge to match the metering box door position as above.
5. Place the exhaust fan flow metering box over the inlet of an exhaust grill so that the gasket on the lip of the metering box creates an air-tight seal.
6. Hold the gauge and flexible hose still, and away from air movement. Observe and record the exhaust flow rate displayed in CFM on Channel B.



To **Pressure Pan** (Channel A)

To **Exhaust Flow Metering Box** (Channel B)

Leave Ref **Open**