



# New Duct System in an Existing Home

Oregon Department of Energy

## GENERAL INFORMATION

Customer Name: \_\_\_\_\_ Test Date: \_\_\_\_\_

Contractor: \_\_\_\_\_ Technician: \_\_\_\_\_

## QUALIFYING FOR THE RESIDENTIAL ENERGY TAX CREDIT

Duct test fan: Make: \_\_\_\_\_ Model: \_\_\_\_\_

Test Fan Location: \_\_\_\_\_ Pressure Tap Location: \_\_\_\_\_

### Option 1: Meet 10 percent leakage to Outside standard

1. Maximum leakage to Outside:  
Floor area served by system ( \_\_\_\_\_ sq. ft.) X 0.10 = \_\_\_\_\_ CFM<sub>50</sub>
2. Tested leakage to Outside after installation:
  - a. Pressurize house to 50 Pa WRT Outside. Test pressure = \_\_\_\_\_ Pa  
(If you can't reach 50 Pa, enter actual test pressure)
  - b. Pressurize ducts to 0 Pa WRT the house. Duct pressure WRT Outside \_\_\_\_\_ Pa
  - c. Duct tester fan pressure \_\_\_\_\_ Pa
  - d. Fan configuration ring: open, ring 1, ring 2, ring 3, other \_\_\_\_\_
  - e. Duct leakage to Outside (use correction factors from reverse if needed) \_\_\_\_\_ CFM<sub>50</sub>
3. Is line 2e equal to or less than line 1?  Yes  No

### Option 2: Meet 10 percent total leakage standard

1. Maximum total duct leakage:  
Floor area served by system ( \_\_\_\_\_ sq. ft.) X 0.10 = \_\_\_\_\_ CFM<sub>50</sub>
2. Tested total duct leakage:
  - a. Pressurize ducts to 50 Pa with reference to Outside. Duct pressure = \_\_\_\_\_ Pa
  - b. Duct tester fan pressure with reference to Outside \_\_\_\_\_ Pa
  - c. Fan configuration ring: open, ring 1, ring 2, ring 3, other \_\_\_\_\_
  - d. Total leakage \_\_\_\_\_ CFM<sub>50</sub>
  - e. Is line 2d equal to or less than line 1?  Yes  No

### Air Handler Effect (Mandatory Test)

For systems to qualify, the air handler must cause no more than a -3 Pa net depressurization in any zone.  
Baseline: All exhaust devices and air handler **OFF**. House with reference to Outside \_\_\_\_\_ Pa

2. With Air Handler **ON**: Record gauge readings below.

#### Zone with reference to Outside

Zone Description		Int. Doors Open	Int. Doors Closed
Zone 1		Pa	Pa
Zone 2		Pa	Pa
Zone 3		Pa	Pa

Each zone containing a combustion appliance must be tested. If there are no combustion appliances present, the major zone of the house must be tested. If the air handling equipment is located in a tightly constructed, attached garage or other such unconditioned space, that zone must be tested.

# Duct Leakage to Outside Test

## Oregon Department of Energy Test Protocol

Tools: Duct leakage tester, blower door, digital-manometer or magnahelic gauge (1 Pa resolution)

### 1. Definitions:

**Pa. (Pascals).** Standard unit of air pressure measurement. Approximately 1/250" water gauge.

**WRT. (With Reference To).** When measuring pressure differences one zone will be the reference zone. The pressure measured in the other zone will be WRT the reference zone.

### 2. House preparation

- A. All interior doors open except: Door(s) to unheated basements, garage, or other unheated zones  
*NOTE: Door(s) to heated basement shall be open.*
- B. Exhaust devices off, including: clothes dryer, bath and kitchen fans, central vacuum cleaner.
- C. Air handler off and set to not operate during test.
- D. Seal all registers and grills.
- E. Remove furnace air filter and any pre-filters.
- F. Close off any outside air ducted to return if possible.
- G. All exterior doors and windows closed.
- H. Combustion devices turned off so that they will not operate during test.

### 3. Equipment set-up

- A. Attach Duct Tester to air handler cabinet or closest large return register, Place end of hose measuring duct pressure in supply plenum (or closest supply duct at least 3' from duct tester attachment). Avoid placing the end of the hose facing the airflow.
- B. Set up Gauge(s) to measure Ducts WRT Outside and Duct Tester Fan WRT Zone where Duct Tester is located.
- C. Run Duct Tester to check air tightness of duct tester attachment and register/grill seals.
- D. Install Blower Door so that it *pressurizes* the house.

### 4. Test

- A. Set blower door to +50 Pa House WRT Outside.
- B. Set duct tester to 50 Pa. Ducts WRT Outside
- C. Adjust blower door if necessary to +50 Pa House WRT Outside. Adjust duct tester if necessary to 50 Pa Ducts WRT Outside. Repeat adjustments until readings are stable. If ducts cannot reach 50 Pa, pressurize ducts to match an entry in the "Can't Reach 50 Pa Factors" table, below.
- D. Measure Duct Tester Fan WRT House. If Fan WRT House pressure is not below -25 Pa. retest with next smaller ring.
- E. Record Duct Tester configuration (ring: none, 1, 2, 3).
- F. Determine duct tester fan flow from chart or manometer:

Can't Reach 50 Pa Factors					
Duct Pressure (Pa)	5	15	25	35	45
Leakage Multiplier	4.5	2.2	1.6	1.3	1.1