

# Pressure Pan Test

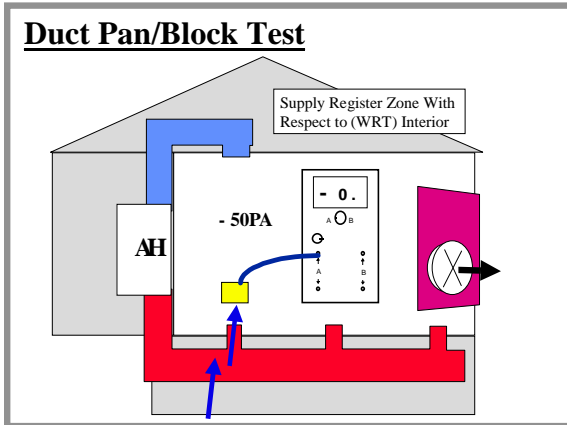
(This is a useful procedure **Not a required test**)

## Testing Procedure

**Application:** Pan testing provides a quick, qualitative assessment of the leakiness of a duct system and helps to identify leak location.

### Tools and Equipment:

- Blower Door
- Digital Micro- Manometer (Accurate to **0.1 Pascal**)
- Tape or Duct Mask
- Pressure Pan or Foam Block

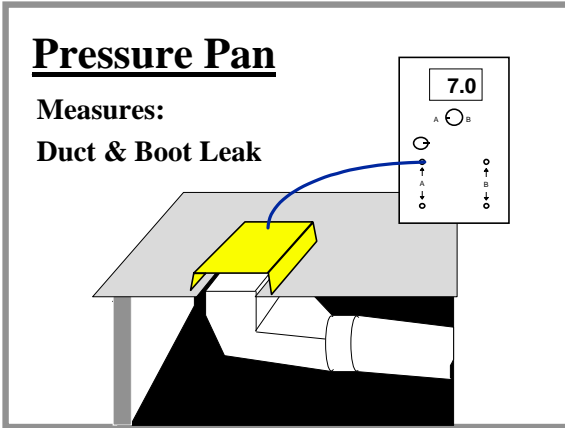


### Setup:

- Setup and operate a blower door to maintain the house at **-50 Pascals WRT** outside according to the instructions for **Basic Blower Door Setup**.
- Set the air handler so that it cannot go on during the test.
- Make sure all exhaust fans and vented appliances are turned off.
- If using a Pressure Pan, seal all floor or ceiling to boot leaks before testing.
- Remove all system filters.
- Measure and record depressurization in buffer zones containing ducts (see procedure for **Zone Pressure** testing).

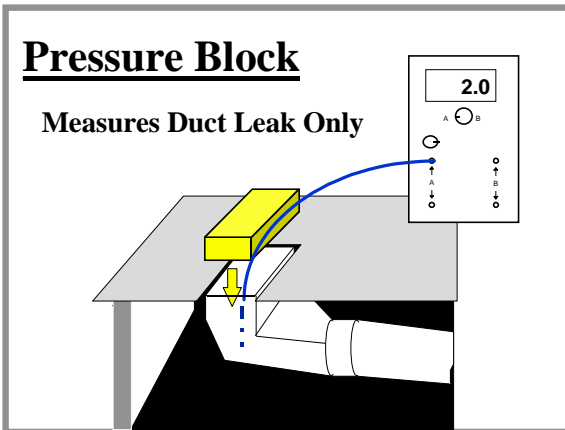
## Pressure Pan

Measures:  
Duct & Boot Leak

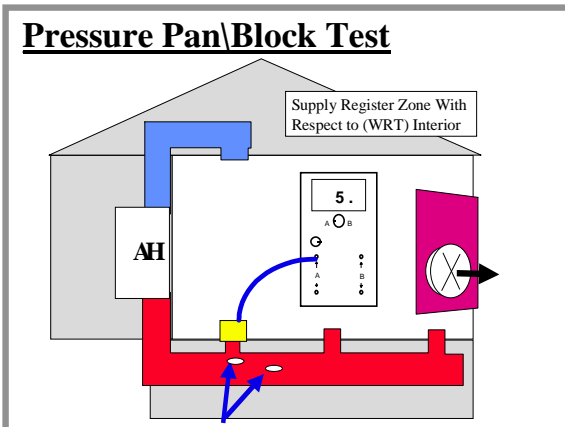


## Pressure Block

Measures Duct Leak Only



## Pressure Pan\Block Test



### **Test:**

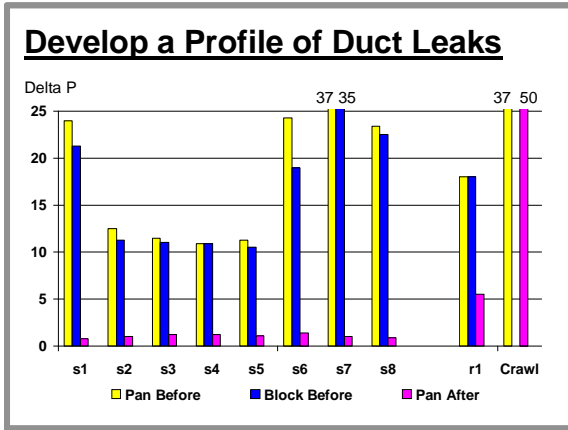
- With all the registers open, place the pan or block at each register to create a pressure boundary between the inside of the duct and the house.
- Using the manometer record the pressure in the duct WRT the house.

Repeat this procedure for each supply and return register in the house. Registers that are too large for the pan or which can't otherwise be covered such as toe kick registers should be taped with duct mask or masking tape and the pan pressure taken by inserting a pressure probe into the duct at the register being tested.

**Note:**

For each measurement, only the register tested is covered or blocked. All the other registers remain fully open to the house.

**Interpreting Results:**



Generally higher pan numbers are associated with proximity to larger leaks in the system. If there is little leakage to the outdoors, all the pan numbers will approach zero. If there is a total disconnect at a register to a duct outside of

conditioned space, the pan number at that register will equal the pressure in the zone containing the duct WRT to the house. When the duct zone is a well-ventilated attic or crawlspace the pan pressure for the disconnected duct will approach the pressure outside WRT to the house (in most cases 50 Pascals). All pan numbers in tightly sealed system would normally be less than 1 Pa.

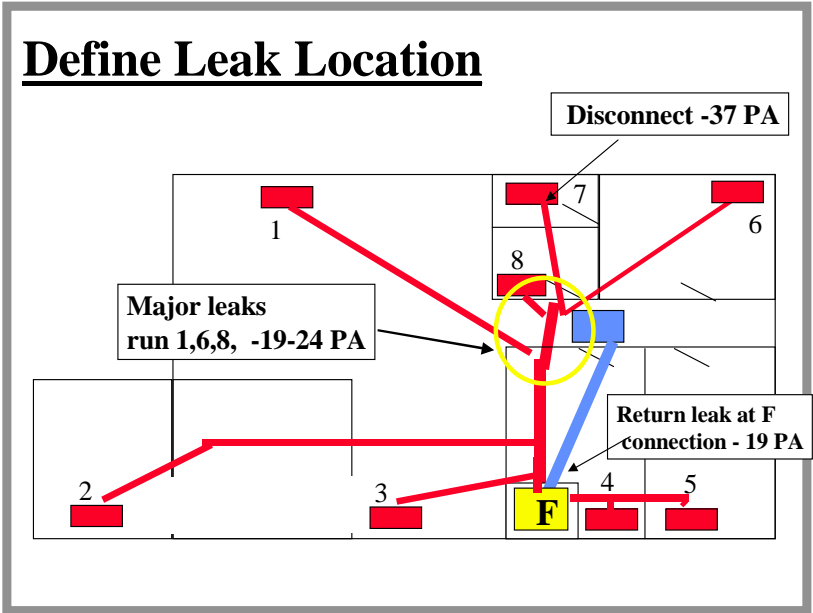
The **pan number** represents the **ratio** of the size of the hole in the ducts connected to the outside compared to the size of the hole in the ducts connected to the interior of the house.

**Example:**

The pan numbers recorded above average about 17.5 on the supply side well above the program standard for a leaky system. Supply register 7 with a pan number of 37 compared to the crawlspace (duct zone) pressure of 37 suggests a disconnect. Registers S2 through S5 are all above 10 but consistent. In a system with a disconnect, these may represent a tight part of the system with little leakage that “sees” the disconnect from a distance.

**Example:**

Mapping the numbers from the previous page onto the schematic of the system helps to find potential leakage sites. Pan numbers are the only diagnostic test that point toward the location of the leak.



**Limitations:** Pressure Pan testing is at best a qualitative assessment of duct tightness. Systems with many registers will tend to have lower pan numbers while small systems with only a few registers will tend to have higher pan numbers even if they have similar leakage areas. Adding registers to a system, enlarging a return or even removing a clogged filter can significantly lower the numbers even when no sealing is done.