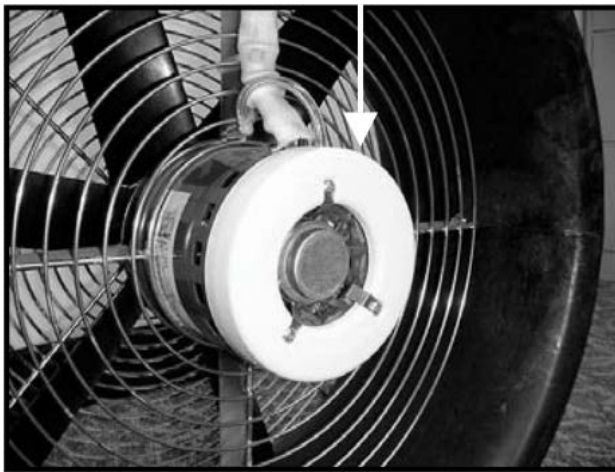


Technical Bulletin: Equipment Calibration

Residential New Construction Program

Accurate testing for all HERS ratings depends on properly calibrated equipment. To ensure that participating homes are tested accurately, the RNC Program has offered manometer calibrations for the past year. Now, the RNC Program is offering equipment field checks and calibrations during inspections and trainings. This Technical Bulletin will discuss the processes for checking field equipment.

Damaged flow sensors are the primary culprit behind miscalibrated fans. Both the blower door and duct blaster have a flow sensor near the center of the fan that measures pressures during testing. The white ring with a tube in the center of the blower door is a flow sensor, and the metal tube in the center of the duct blaster is a flow sensor. Examples of these are shown below.



Blower door flow sensor



Duct blaster flow sensor

Images provided by The Energy Conservatory

A damaged flow sensor alters the manometer readings. This occurs when the flow sensor is leaky or misaligned. The following instructions detail methods raters can use to quickly check flow sensors.

Verifying the flow sensor isn't damaged or leaking:

1. Visually confirm the flow sensor is not damaged or deformed.
2. Tape the sensing holes closed.
 - a. The blower door has four holes located on the side of the flow sensor.
 - b. The duct blaster has three holes located at the back of the flow sensor.
3. Similarly to manometer calibration, use tube splitters and connectors to attach a hose to the pressure tap on the blower door or duct blaster, a manometer, and a 1 ml syringe. Be sure to separate the syringe from the manometer and fan with 30' of tubing to prevent damaging the equipment.
4. Pull the plunger on the syringe to create a 100 Pa vacuum and monitor the pressure fluctuations. If a pressure cannot be maintained, contact The Energy Conservatory for further guidance.

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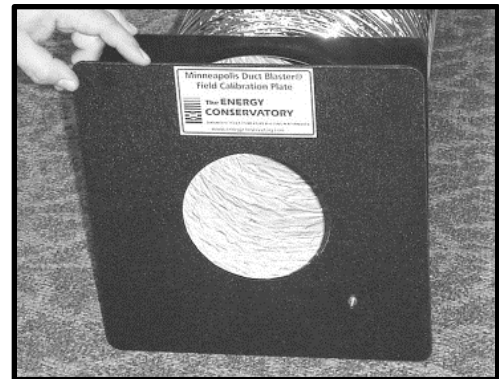
Verifying the position of the flow sensor:

1. With all of the rings removed, lay the blower door or duct blaster on its side with the flow sensor facing up.
2. Place a straight edge across the fan and measure the distance between the straight edge and the flow sensor.
 - a. The distance for the blower door should range from 3/16" to 5/16".
 - b. The distance for the duct blaster should range from 5/8" to 7/8".
3. If the flow sensor is out of position, the fan needs to be adjusted. Call The Energy Conservatory for further instructions.

In addition to checking the flow sensor, the duct blaster can be calibrated with a duct blaster calibration plate. An image of the plate is to the right.

When the duct blaster is connected to the plate, the manometer should read between 103 and 109 CFMs. If the duct blaster is outside of this range, the sleeve of the duct blaster or the flow sensor may be damaged.

The RNC Program is offering duct blaster plate calibrations during QC inspections. Please contact us at DERNC@icfprogram.com to arrange a QC inspection.



Example of a duct blaster calibration plate

Additional tips to ensure testing results are accurate for the duct blaster include the following:

- Ensure the nozzle of the duct blaster ring is pointing towards the fan when testing.
- For depressurization duct tests, remember to install the flow conditioner plate in the duct sleeve.
- Keep the duct blaster fan unobstructed during testing.
- Inspect the duct sleeve for holes. For a quick solution, raters can tape the holes, but its best to get a new sleeve.