

Why measure house air tightness?

- The tighter the house is sealed, the less air leakage there is, and the better the ventilation system works.
- The difference in pressure from inside to outside the house (often referred to as differential or negative pressure) can indicate how airtight or well-sealed a house is.
- House pressure should be monitored routinely and regularly to maintain the correct pressure and identify any air leaks that may impair ventilation.



The procedure for measuring house air tightness using a differential pressure meter

Equipment

Any portable or in-house pressure meter.

Procedure

Note - If using a mounted in-house pressure meter, it should have been calibrated at the beginning of the flock (see How To... Calibrate an In-House Fluid Filled Pressure Meter).

Step 1 Close all doors and inlets and switch off all fans. The house should be sealed as it would be during winter (cold weather). The side and tunnel inlets should not open during this test.

Step 2 If using a portable pressure meter, place the high-pressure pipe (+ve) outside the house through an air inlet (or suitable opening). Open the single inlet just enough to put the pressure meter tube through, and be careful not to squeeze/block the tube.

Step 3 With no fans running, ensure the pressure meter shows zero pressure.

Step 4 Turn off the side wall and tunnel inlet winches so the inlets do not open automatically.

Step 5 Turn on either 1 tunnel ventilation (127 cm / 50 in) fan or 2 minimum ventilation (91 cm / 36 in) fans.

Step 6 Allow the pressure reading to stabilize, and then record the reading on the pressure meter.

Note - Measure house air tightness by recording the difference in pressure between the inside and outside of the house while fans are operating. Preferably, this test should be performed when there is no or very low wind speed outside.

If only one tunnel fan (127 cm/50 in) or two side wall (91 cm/36 in) fans are running, the pressure may be the same anywhere around the perimeter of the house.



Step 2



Step 3



Step 4



Step 5

Interpreting results

- Ideally, the pressure within the house should not measure less than 37.5 Pa (0.15 in of water column).

Note - This recommendation is based on a house with $\pm 1,850 \text{ m}^2$ ($\pm 19,900 \text{ ft}^2$) floor area, e.g., 15 m (49 ft) wide x 123 m (403 ft) long. Smaller floor areas should achieve higher test pressures; larger floor areas may achieve less.

- The pressure is used to determine or indicate how well-sealed the house is.
- Higher operating pressures may need to be used during minimum ventilation.

Pressure Reading	In-House Pressure	Effect	Action
< 37.5 Pa (0.15 in of water column).	Inadequate – too much air leakage	Difficult to ventilate in cold weather. Higher than normal heat consumption. Greater than normal temperature and air speed difference along the house in tunnel ventilation.	ACTION REQUIRED: Check for presence of unnecessary cracks / gaps around the perimeter and ceiling / roof of the house, poorly fitting doors or inefficient fans. Do the inlets close fully?
37.5 - 42.0 Pa (0.15 – 0.17 in of water column).	Acceptable/better.	It will be easier to achieve the desired side inlet airflow in minimum ventilation. There should be less variation in temperature and air speed along the length of the house	ACTION REQUIRED: The higher the test pressure, the better the ventilation system will work. Action – as above

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