



## Airtightness testing – information for clients

**Airtightness testing is a recognised method for measuring the extent to which air is lost through leaks in the building fabric. It is often referred to as an air leakage test or air pressure test.**

**It is important to understand that air leakage is the uncontrolled flow of air through gaps and cracks in the fabric (often referred to as infiltration or draughts) and not ventilation, which is the controlled flow of air in and out of the building. Too much air leakage leads to unnecessary heat loss and discomfort for the occupants.**

The gaps and cracks within the building fabric are often difficult to detect simply by visual inspection. One way of identifying these issues and quantifying infiltration is by a blower door test, which is specified in Part L for new build dwellings. Air permeability is the measure of air leakage and relates an air flow (in m<sup>3</sup>/hr) to the building envelope. It is expressed in terms of m<sup>3</sup>/hm<sup>2</sup>@50Pa. The air change rate relates the air flow to the volume of the building (ach@50Pa).

The building is either pressurised or depressurised to a 50Pa difference to outside conditions using a blower door normally mounted in a door casement. Where required, areas of leakage are then identified either using a thermal imaging camera or smoke.

During the testing process, access to the building is severely limited and it should be assumed that it will not be possible for other trades to be working in the property.

**For a single new-build property (domestic and non-domestic) to be signed off by Building Control, it is normally expected to have a certified air permeability result lower than the design air permeability (unless other factors on the build have changed). On larger developments, only a percentage of each building type needs to be tested.**



**Diane Hubbard of Green Footsteps is accredited for the testing and Part L certification of both homes and non-domestic buildings (up to a volume of 4000m<sup>3</sup>).**

**Diane is accredited under the iATS (Independent Airtightness Testing Scheme) Competent Person Scheme and is a Certified Passivhaus Consultant and Certified Passive House Tradesperson.**



**Checklist— all of the following are required in order to carry out an on-completion test on a property:**

- All windows and external doors must be installed and closed. Loft hatches / doors into eaves should be fitted.
- Central heating boiler should be fitted. Any appliance which draws its air from within the property must be switched off e.g. oil-fired Aga, wood burning stove.
- Any ventilation systems (e.g. MVHR, passive ventilation, extract) should be installed, but must be switched off for the test
- All walls, floors and ceilings must be completed
- All skirting boards, electrical sockets, light fittings and switches, kitchen units and bathroom suites must be fitted
- Unless thermal imaging has been requested, heating should be switched off in order to comply with ATTMA test requirements
- Drainage Traps should be filled with water
- Equipment is fitted into an opening, usually an exterior door casement. This needs to be no larger than 1m x 2.4m.
- A mains power supply within the building is needed (240V or 110V) - a cable through a window should be avoided. **Portable generators are not suitable.**

**If all of the above are not in place when the tester arrives, it may not be possible to carry out the test but the time will still be charged - so raise any potential issues in advance of the test day.**

Please ensure that accurate floor plans (PDF) are supplied in advance of the test so the test results can be discussed with you following the test. If PDF floor plans are not available, there will be an additional charge for measuring the property (charge dependant on property size).

**If there are any open fireplaces within the property, photographs need to be forwarded before a test can be confirmed.**

**If thermal imaging is to be carried out in conjunction with the air tightness test, the property needs to be heated to at least 18°C uniformly for the 24-hour period ahead of the test with the heating being switched off at the start of the test.**

### **What is the outcome of the testing?**

Whilst the test is taking place, the key infiltration points will be identified – this may be using thermal imaging, smoke or observation (depending on the weather conditions and test type).

A certificate confirming the air permeability and air change rate for the property under the test conditions can be produced on request.

Where thermal imaging has been used, you will receive copies of all relevant thermal images for your future reference. If a formal report on the outcomes of the survey is required, this will be at an additional cost.

### **Properties designed to be relatively air tight**

Where the design air permeability is  $5 \text{ m}^3/\text{hm}^2@50\text{Pa}$  or less, it may be prudent to consider an additional test or tests at earlier stages of construction when it is easier and cheaper to rectify faults in the airtightness barrier. This will lower the risk of the building failing the on-completion test.

Ideal stages for additional tests to take place are when the airtightness membrane is installed and still exposed (or after first fix where membranes and tapes are not used) and after second fix. However, this may vary according to the nature of the construction.