



Version 1.0
April 2016

Residential Air Permeability Checklist



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Residential Air Permeability Checklist

This checklist is split into three sections to help.

Section 1 is a generalised checklist to assist you with preparations prior to our visit.

Section 2 is a descriptive methodology to achieve air tightness during stages of the build.

Section 3 is a list of simple steps to ensure you are planning an air tightness strategy with details of how we can help.

'Air Tightness Barrier'

A continuous airtightness barrier system is the combination of interconnected materials, flexible sealed joints and components of the building envelope that provides the airtightness of the building enclosure and the separateness of heated and unheated spaces.

Section 1

4

Please tape all ventilation within the build; this will enable the engineer adequate time onsite to assist in any small remediation works within the timescale if required. Ventilation includes intermittent extracts, mechanical extractors, air bricks, fire vents, chimney openings, trickle vents, roof window vents, inlet – outlet ductwork.

We require two 110 / 240v live electric sockets provided by site to operate.

If power to site is a problem we do have access to a small generator which can be hired at a cost of £50.00 +vat electric.

Ensure the building envelope is complete. All glazing, external doors and cladding to be complete.

Light fixtures to be fitted.

All sockets to be fitted.

Any penetration made through the external envelope to be sealed.

Any loft/ storage doors, hatches to be finished and in place with a draft excluder.

SVP and any waste pipes passing through the external walls and ceilings to be sealed.

If applicable all boxing in housing a soil pipe, to be sealed if exiting through the ceiling or external wall.

Plumbing installed and all traps to have water in.

Skirting boards to be in fixed and sealed top and bottom.

Integral garages with doors to the house to have draft excluder around the door.

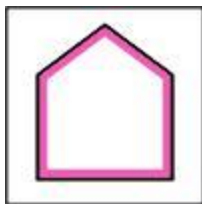
Any exposed beams require a caulk/mastic joint around the plastered finish around the beams.

If you have a chimney, make sure this has already been sealed prior to our visit.

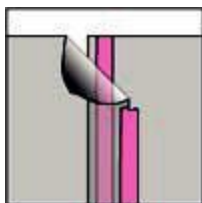
We require a parking space for a transit van type vehicle within 20 metres of the test location on site. **If you are unable to provide a parking space, parking charges including any fines incurred will be chargeable.** Congestion charges and road / bridge tolls will be included in the price quoted.

We do require a door frame of standard size to fit our square adjustable frame. You may need to modify the opening to suit our template. Minimum size opening 700 x 1300mm/ maximum 1100 x 2400mm.

Section 2

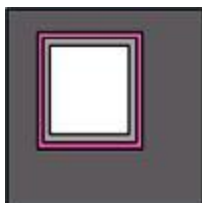


Air barriers must be impermeable to air, continuous, durable and accessible. Internal air barriers need to be airtight; external air barriers need to be wind-tight. Air barriers can be vapour open but require careful specification of adjoining construction and insulation materials. Having made the building airtight, mechanical ventilation is essential.

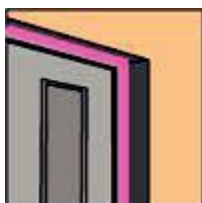


Laps in membranes should be rigorously sealed. Run a layer of double sided tape between the membranes at the overlap and run a tape over the leading edge of the outer sheet. Ensure that laps are positioned over a supporting area e.g. studs that can be battened for added security.

Special wind and airtight membranes are available complete with adhesives, adhesive tapes and service penetration seals.



When installing/reinstalling a window/door frame, ensure that the gaps around the frame are sealed. Gunned in compatible sealant is suitable for small joints, not forgetting joint cleaning and priming to ensure a good bond. Where the openings are larger use a pre-compressed flexible expanding foam strip. Ensure that the airtight membrane meets and overlaps the seal to maintain the airtight layer overall. Do not use foaming gapfilling adhesives, they shrink and break the seal after the tests are complete.



Use compatible gunned in sealant to seal joints between door/window frames and the surrounding wall externally. Internally, apply sealant to gaps between the wall reveals/window boards and the window/door units.



Draught strip existing windows and external doors. (Do not draught strip to kitchens and bathrooms unless extract ventilation is provided.) Use synthetic rubber or elastomeric tubular seals. Use brush seals with sash windows.



Draught strip the loft hatch. Ironmongery should be specified to ensure seals are compressed. NB Check that the hatch is thermally insulated as well as the rest of the ceiling.

Section 2



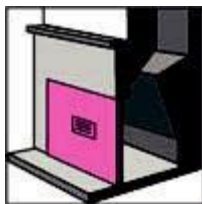
Seal holes around services passing through the external wall including water, drainage, gas pipes, boiler flues and electrical cables. (Ensure that the sealant around boiler flues is heat resistant)



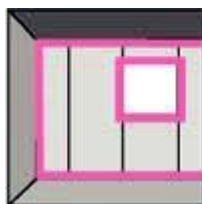
Seal holes around service pipes passing through suspended timber floors.



Seal holes around light fittings and pull cords in the ceiling. If the light fitting is not airtight then install an airtight box over the light fitting in the ceiling void. Choose airtight light fittings.



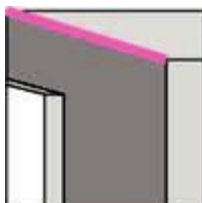
Block up redundant fireplaces and insert vent. Cap the chimney. Make sure the blocking up material is thermally insulating to reduce excessive heat losses.



Drylining is notoriously air leaky, consider parge coating the wall for airtightness before drylining. When drylining directly to an external wall, apply a continuous perimeter of adhesive. Ensure the joints between boards are sealed



Lay room-conditioned hardboard over existing square-edged floor boards. Seal the perimeter.



Seal the joint between the ceiling and the external wall. Seal the joint between drylining and skirting board.

How to plan

- 1** Define an airtightness performance target. This is found on your SAP (Standard Assessment Procedure) calculation. This will enable you to plan a strategy to achieve this level and better.
- 2** Establish ventilation with your SAP assessor. Different ventilation systems work most effectively with different levels of air tightness. We have the expertise to advice on your ventilation requirements.
- 3** Details should be thoroughly worked out at design stage and not 'left-to-chance' later on site.
- 4** The airtightness barrier needs to be designed into the building envelope during the initial concept design stage. It can be useful to take plans and sections and draw a continuous red line that passes through all the elements that separate heated and unheated spaces.
- 5** Tightly manage the design implementation by appointing an 'Airtightness Champion' to coordinate.
- 6** Use a performance specification.
- 7** Ensure all trade specifications include their requirements and interfaces with other trades.
- 8** Specify airtight components, membranes, seals and jointing methods.
- 9** If the design team is inexperienced, it might also be prudent to appoint an independent adviser. We are here to help.

On site

- 1** Site manager needs to understand how critical it is to understand the designed air tightness and the methods involved around it. Communication with the design team is key.
- 2** It is useful at an early stage to identify critical details that will have a bearing on the airtightness barrier.
- 3** Appoint an Air tightness Champion for the responsibility and to coordinate between consultants and contractors.
- 4** Think in 3D and explore around every corner.
- 5** Check trades and the interfaces between each specific aspect that the air tightness hasn't been compromised.

How we can help

Below are all the various services we can assist with. Help is at hand.

Temporary Air Sealing	Temporary sealing programme will ensure the building is fully prepared in advance of the air permeability test itself. It will involve sealing of all ventilation systems and extracts.
Contract Structural Air Sealing	Designing an effective air sealing strategy should begin at design stage and continue through to the formal Air Test, with the latest practicable 'start point' being 1st. Fix Stage. Our sealing teams, managed by experienced air test engineers, will use robust sealing products and bring tried and tested expertise of working alongside other trades contractors to ensure that the building will ultimately achieve a successful 'PASS' come the formal air test day.
Air Permeability Drawing Review	A drawing review in our mind is the most effective way to identify potential design flaws and/or anomalies that may have an impact upon meeting the standards required to achieve compliance with Part L of the Building Regulations. Our qualified Engineers/Assessors will review all aspects of the drawings and prepare an easy-to-read detailed report. In addition with advice and guidance on how to best prepare the building/s in readiness for successfully achieving a 'PASS' at the time of formal air permeability testing.
Air Permeability Drawing Review Site visit	A great way to get on site with the architect(s)/developer(s) to identify potential design flaws and/or anomalies that may have an impact upon the building/s meeting the standards required to achieve compliance with Part L of the Building Regulations. Our qualified engineers/assessors will review all aspects of the drawings and provide advice and guidance on how to best prepare the building/s in readiness for successfully achieving a 'PASS' at the time of formal air permeability testing.
Pre - Air Permeability Test Visit	Hands on approach to get on site with one of our experienced engineers/assessors will, together with client / site agent, carry out a detailed examination of the build (where accessible) and identify potential areas of 'air leakage'. In addition providing straightforward practical advice and solutions to help you prepare the environment and develop the required 'air test mind-set' which will ensure peace of mind come test day. A FREE easy-to-understand 'tick-box' report will be provided on site identifying specific areas of leakage and recommending specific measures that will assist the client in achieving improved levels of energy efficiency.

Air Permeability Testing - Pre Improvement	<p>Why not get your existing house tested to establish heat loss throughout the building. Why spend thousands on the insulation when a simple air leakage test can be just as effective.</p> <p>We leave an easy-to-understand 'tick-box' report can be provided on site. This identifies specific areas of leakage and recommends specific measures that will assist the client in achieving improved levels of energy efficiency.</p>
Air Permeability Testing - Post Improvement	<p>After all remedial works have been carried out at pre-improvement stage we can carry out an air leakage test to demonstrate the levels of improved energy efficiency that have been achieved as a result of the recommended improvements or remedial works.</p>
Air Permeability Smoke Testing	<p>Want to see where it leaks? By using a combination of odourless, non-toxic smoke and building pressurisation to identify air leakage exit points and air flow paths. This is the most effective way of identifying air leakage defects within a building structure.</p> <p>A FREE easy-to-understand 'tick-box' report will be provided on site identifying specific areas of leakage and recommending specific measures that will assist the client in achieving improved levels of energy efficiency.</p>
Air Permeability Site Visit(s)	<p>A friendly yet informative site visit to provide advice and guidance regarding the air test process and to walk the client through our easy-to-understand air test preparation checklist.</p>
Air Permeability Test	<p>To conduct formal air permeability testing in accordance with the ATTMA TS1 issue 2 (BS, EN Standard 13829:2001) and to produce the required iATS Certificate/s to demonstrate that the building/s comply with Part L of the Building Regulations.</p> <p>All our testing is carried out by our in-house team of iATS certified Air Test Engineers and we provide ALL of our clients with a FREE easy-to-read checklist to help you successfully prepare the building/s prior to testing.</p>
Residential Air Permeability - Multi-Unit Testing	<p>Large sites... we can help. Air Permeability Testing to ATTMA TS1 Issue 2 (BS,EN Standard 13829:2001) Standard - to comply with Approved Document L of the Building Regulations and including all associated Test Reports(s) and Certificate(s).</p> <p>Multi-unit air permeability testing designed for the larger sites. Simple matrix to be used for every site visit. Dependant on the site conditions we are able to test between 15-20 plots per visit per engineer.</p>