

Version 1.1
February 2025

Diagnostic Smoke Testing Checklist

Diagnostic Smoke Testing Checklist

We utilise this service to identify and assess excessive air leakage in buildings. This method serves as a visual aid to highlight the extent of air leakage issues.

Process overview

Smoke generation

We use a machine to fill the building with smoke. This visual cue helps to reveal the presence of leaks.

Pressurisation

Specialised fans pressurise the building, pushing the smoke from the inside out. This step aids in identifying the exact points where leaks occur as the smoke exits through these vulnerabilities.

Key points

Leakage paths

It's important to note that the location of visible smoke does not always correspond directly to the source of the leak. Air can travel through various interfaces and voids within the building structure before escaping.

Smoke pencils

On the day of testing, we may also use small smoke pencils, subject to access and height restrictions. By reversing the fan to create a depressurised environment, you can physically feel and see where air enters the building. This is particularly useful for pinpointing specific areas that need sealing internally or for identifying small, incremental improvements in air tightness. This testing not only helps in locating leaks but also in understanding the air pathways within your building, ensuring that efforts to seal leaks are accurately targeted.



Diagnostic Smoke Testing Checklist

1. Build stage

This test can be conducted at any stage, but it is essential that the building is watertight with all external windows and doors installed. Creating the necessary pressure for the test requires that the structure be sealed against the elements, as any evident holes or gaps leading to the outside will prevent achieving the required pressure levels.

2. Drawings

Please send us floor plans, sections, and elevations if you haven't already. This helps us to accurately measure the surface area, leading to better results. Send these drawings to your Relationship Manager so we can calculate before the test.

3. Target

This assessment is vital for ascertaining the building's current performance regarding air tightness. During the test, we aim to establish the extent of air leakage that needs to be addressed. Each new build will have a specific target for air tightness, which is determined based on the SAP (Standard Assessment Procedure) assessment. Understanding this target is essential for ensuring that the building meets both regulatory standards and performance expectations.

4. Power

Each plot will need power. We require 110v / 240v sockets by an external door that will be used to locate the fan. **No power, no air leakage test.**



Diagnostic Smoke Testing Checklist

5. Ventilation and temporary air sealing

Please **switch off and** temporarily cover all ventilation (including background) in the building. This includes any chimneys or log burner ventilation. Check all roof windows are shut, including any vents – this can sometimes get missed by the engineers.

If you are unable to switch off and seal up all ventilation ahead of testing this will affect the accuracy of the results. We recommend using air sealing tape from airsealingexpert.co.uk.

6. Height

If there are any extract fans or MVHR vent above 2.4m but less than 3.2m, we will require a stepladder to be provided by site that conforms to BS EN 131 to safely access the vents in order to measure the flow rates. If the vents are higher than this, or are situated in an awkward position that would require overreaching or that prevents the stepladder being fully opened and locking mechanisms engaged, you **MUST** arrange a platform for the engineer to use in order to safely test.

7. Water

Please ensure water is in all the traps (sinks, toilets, and utility waste pipes) as it will affect your air leakage test and may cause unpleasant odours when we depressurise the building.

8. Trades and access

We need easy access to all plots that require testing. We understand finishing the development is crucial, but having the place to ourselves would help us detect leaks faster. If this isn't possible we're willing to cooperate with you.



Diagnostic Smoke Testing Checklist

9. Door

We require an external door frame of standard size to fit our square adjustable frame. You may need to modify the opening to suit our template. The minimum size opening is 700 x 1300mm, and the maximum is 1100 x 2400mm.

10. Parking

We need a parking spot within 20 meters of the plot we are testing, as the equipment is heavy and very expensive. If no parking can be provided please notify your relationship manager, as parking charges will be added to the final invoice.

11. Location and site address

We aim to arrive at the designated time window, so to help us be as efficient as we can, let us know if there are any difficulties finding the site. Ideally, send us [what3words](#). For your certification records we will require the registered site address. Please ensure the correct address is used on all correspondence, as changes will incur an additional cost.

12. Notifications

Notify neighbours and the local fire brigade, as smoke leaving the building may prompt unnecessary calls from concerned locals.

13. Signature

A site manager or representative must be present throughout the duration of the testing—for our own safety—and be able to provide a signature once we are finished.