

Typical Procedures For Carrying Out An Air Test

To ensure the air test is carried out to plan and the risk of failing is minimised, it is necessary for HRS and the client to work together. Once HRS receive an order, a procedure is set into train which ensures that everything swings into action. At least a week prior to the air test, HRS send clients a FAX back set of procedures which the client needs to confirm that they are ready to test.

The FAX back include the following points;

1. Air test time and date. Note, the client can change the date of the test up to 48 hours prior to the test without charge. HRS must be informed at least 5 days prior to the air test of any major temporary works, as these may adversely affect the result of the air test.
2. Access to the door where the fan is to be set up, should be flat and accessible.
3. HRS set up the screen for the fan if it is a double door. The client must build a screen if the door to be used is a loading bay door.
4. HRS assume that the building envelope is complete and ready to test. It has been assumed that the works will take 5 hours to complete. 99% of air tests are completed within 5 hours.
5. HRS request that the architect calculates the envelope area figures as it is not always evident from drawings where the envelope of the building lies. The air tightness envelope of the building follows the insulation in the floor slab, external wall and roof. Plant rooms ventilated to outside and cold roofs therefore should generally be excluded from the envelope area figures. Note, HRS verify these figures from drawings supplied or on site. The envelope area is required before the test date, in order to give a result on the day.
6. The check list details what temporary sealing needs to be carried out, prior to the test.
7. To summarise temporary sealing is not required on loading bay; external doors/frames/thresholds; windows and cills; lift shaft vents and doors; electrical switch, plant, tank rooms; smoke exhaust fans and vents.
8. Temporary sealing is required on fresh air inlets and exhausts to air handling plant temporarily sealed. Check that drains, water traps are all filled with water.
9. Attendance from the specialist H & V sub contractors is required to shut off and close down all H and V equipment and any other equipment that form openings or penetrations in the envelope and temporarily seal them. HRS accepts no responsibility for these works, although HRS check the sealing is adequate. Note service ducts (gas telephone etc) need to be sealed as well.
10. The Client must inform all contractors and personnel that access into and out of the building will be restricted for a period of at least 2 hours and ensure that this is observed. Note, works can still proceed on site as usually access is restricted for periods of 20 minutes at any one time.
11. All internal doors, air sealed plenums / suspended ceilings / raised floor systems are effectively fixed opened to enable unrestricted air flow into all parts of the building envelope.

On the day of the air test HRS usually turn up mid morning and go through site induction procedures.

1. Prior to setting up their own air test rig, HRS walk the site with the clients' engineer and ensure everything is set up correctly. Once agreed that everything is set up, the air test can proceed. Hopefully, the first test is successful and passes the specification criteria. However ...
2. If the first test fails, HRS again walk the site and identify why it has failed. If this can be put right, remedial works may be applied by the contractor and a second test carried out.
3. Further tests are then carried out and if the test still fails, HRS can look for leakage paths by using portable smoke generators or pencils to identify where air is leaking. Another method usefully employed is to set the air test rig in reverse, thereby de-pressurising the building and feeling for drafts on the inside face of internal walls. Either way, HRS technicians use their experience of air sealing in helping the contractor. It usually becomes obvious whether or not the air test result will be brought under $10\text{m}^3.\text{h}^{-1}.\text{m}^{-2}$ within the day.
4. Prior to leaving site, the air test result is discussed with the clients' engineer.

