

AS 4254.2- 2012

Duct Leakage Testing

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Leakage Testing – Standards & Guidelines

- Building Code of Australia (BCA) 2013
- AS 4254.2 2012 Section 2.2.4
- DW 143 – A Practical Guide to Ductwork Leakage Testing
- CIBSE Code A; Air Distribution Systems, Section AA2.5

AS 4254 - 1995

- Up until BCA 2013, AS 4254 – 1995 was applicable standard
- No requirement for field leakage testing was required, only design allowances
- Focus was on construction and material requirements

Duct Leakage Testing – Why Does It Matter?

- AIRAH DA 09 adopts a 5% duct leakage
- This equates to a fan deliver requirement of 105% to achieve design
- The increase in airflow equates to a 16% increase in power consumption
- Supply duct can sweat at leakage point
- Return duct leakage adds to plant heat load
- Chillers and cooling towers have to work harder
- Early testing has found on average a 10% leakage rate which equates to a 33% increase in power consumption

AS 4254.2 - 2012 Testing Parameters

- Test 10% of each system – test must include a portion of the floor distribution, risers, seam types, plantroom duct, etc
- Test leakage performance at 1.25 times the calculated operating pressure in the tested section of duct
- Leakage is not to exceed 5% of the test branch design air quantity
- Tested in accordance with DW 143, Appendix B

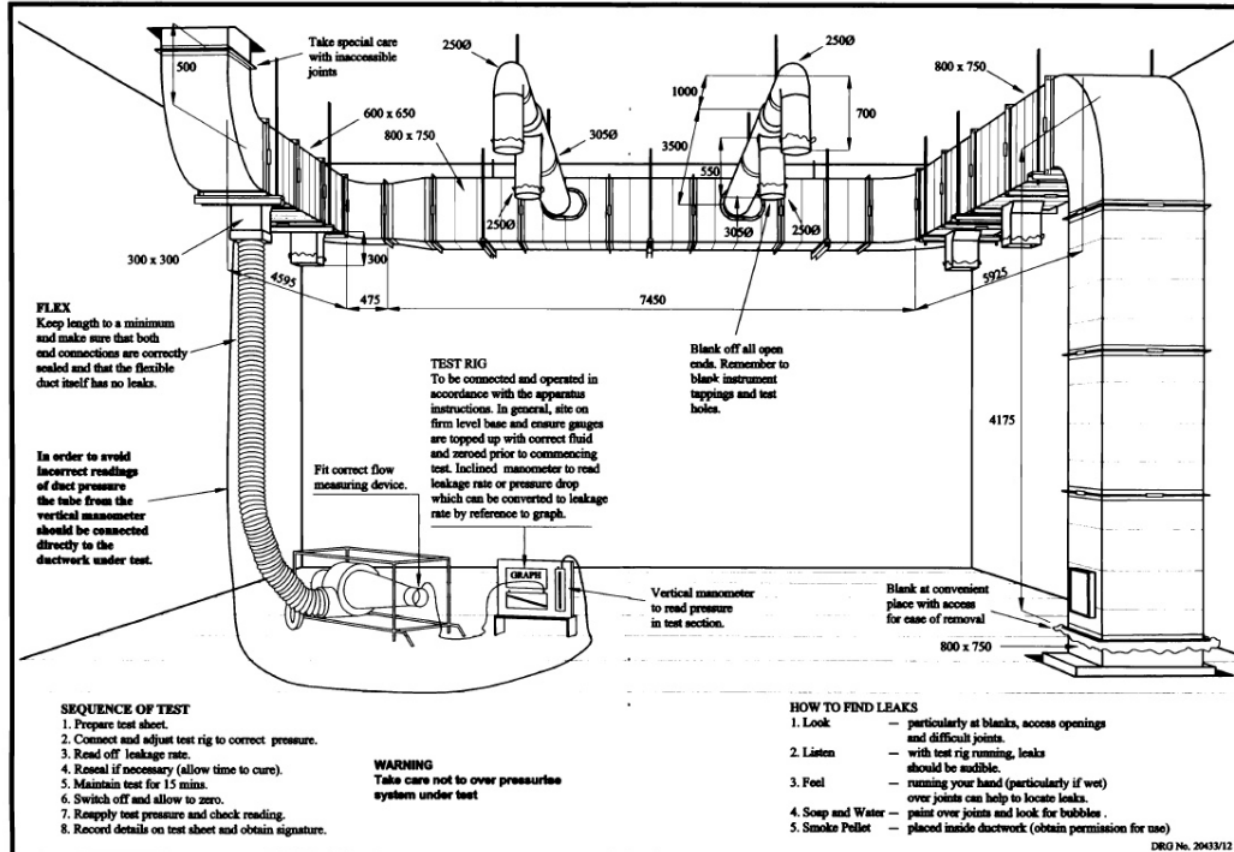
Testing Equipment (TSI PANDA)



Testing Setup

Fig. 1 Hints on Ductwork Leakage Testing

The dimensions on this ductwork are used in an example on page 7



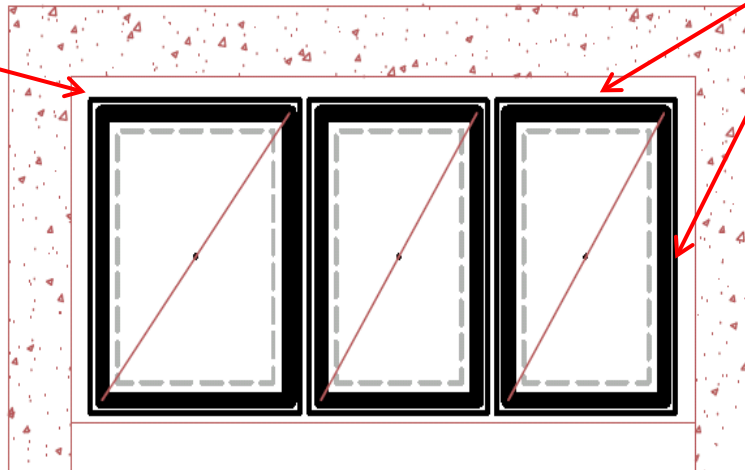
Final Thoughts

- Clearly define how the system will be tested (positive or negative)
- Allow for leakage test points in risers so you don't have to test the system as a whole
- Discuss with the duct manufacturer the acceptable sealing methods (detailed within AS 4254.2 – 2012)
- Discuss with the site install team how risers will be installed (pic)
- Get on site early and test completed sections to ensure compliance
- Carry out test before insulation ductwork
- Sources of leaking include, VAV boxes, fire dampers, access hatches, duct heaters, etc.

Riser Sealing Issues

- Duct leakage cost \$\$'s (especially on large high rise buildings)

Bolts are often missed due to poor access



Cleats are often missed due to poor access

THANK YOU & Question Time

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