

Part 1 General

1.1 GENERAL

- .1 New duct systems over 5 m in length, forming part of a supply, return or exhaust ductwork system directly or indirectly connected to air handling equipment to be pressure tested for leaks.

1.2 TIMING

- .1 Ducts to be tested before installation of insulation or any other form of concealments.
- .2 Test after seals have cured.
- .3 Test when ambient temperature will not affect effectiveness of seals, gaskets, etc.

1.3 EXCLUSIONS

- .1 Flexible connections to air terminal control boxes.
- .2 Existing duct systems being re-connected to new rooftop equipment.

1.4 REFERENCES

- .1 SMACNA HVAC Air Duct Leakage Test Manual.

1.5 TEST PROCEDURES

- .1 Maximum lengths of ducts to be tested to be consistent with capacity of test equipment.
- .2 Section of duct to be tested to include:
 - .1 Fittings, branch ducts, tap-ins.
- .3 Repeat tests until specified pressures are attained. Bear costs for repairs and repetition to tests.
- .4 Base partial system leakage calculations on Reference Standard.
- .5 Seal leaks that can be heard or felt, regardless of their contribution to total leakage.

1.6 TESTING AGENCY

- .1 Installing Contractor.

1.7 VERIFICATION

- .1 Departmental Representative to witness tests and to verify reported results.
- .2 Provide testing schedule to Departmental Representative 3 days in advance of test. Departmental Representative may authorize un-witnessed testing.

1.8 TEST INSTRUMENTS

- .1 Contractor to provide instruments for tests.
- .2 Test apparatus to include:
 - .1 Fan capable of producing required static pressure.
 - .2 Duct section with calibrated orifice plate mounted and accurately located pressure taps.
 - .3 Flow measuring instrument compatible with the orifice plate.
 - .4 Certified calibration curves for orifice plates used.
 - .5 Flexible duct for connecting to ductwork under test.
 - .6 Smoke bombs for visual inspections.
- .3 Test apparatus to be accurate to within +/- 2 % of flow rate and pressure.
- .4 Submit details of test instruments to be used to Departmental Representative at least one month before anticipated start date.
- .5 Test instruments to be calibrated and certificate of calibration deposited with Departmental Representative no more than 7 days before start of tests.
- .6 Instruments to be re-calibrated every six months thereafter.

1.9 SYSTEM LEAKAGE TOLERANCES

- .1 System leakage tolerances specified herein are stated as a percentage of total flow rate handled by the system. Therefore, when testing sections of ductwork this acceptable leakage shall be pro-rated to entire system. Leakage for sections of duct systems shall not exceed the total allowable leakage.
- .2 Leakage tests on following systems not to exceed specified leakage rates.
 - .1 Small duct systems up to 250 Pa: Leakage 2%.
 - .2 Large low pressure duct systems up to 500 Pa: Leakage 2 %.
- .3 Evaluation of test results to use surface area of duct and pressure in duct as basic parameters.

1.10 REPORT FORMS

- .1 Submit proposed report form and test report format to Departmental Representative for approval at least one month before proposed date of first series of tests. Do not start tests until approval received in writing from Departmental Representative.

1.11 PRESSURE TEST REPORTS

- .1 Prepare report of results and submit to Departmental Representative within 48 hours of completion of tests. Include:
 - .1 Schematic of entire system.
 - .2 Schematic of section under test showing test site.
 - .3 Required and achieved static pressures.
 - .4 Orifice differential pressure at test sites.
 - .5 Permissible and actual leakage flow rate (L/s) for test sites.
 - .6 Witnessed certification of results.
- .2 Include test reports in final TAB report.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

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