ANSI/ASHRAE/SMACNA Standard 126-2008
(Supersedes ANSI/ASHRAE/SMACNA Standard 126-2000)

ASHRAE/SMACNA STANDARD

Method of Testing HVAC Air Ducts and Fittings

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NOTE

When interpretations or errata to this standard have been approved, they can be downloaded free of charge from the ASHRAE Web site at http://www.ashrae.org.

(This foreword is not part of this standard. It is merely informative and does not contain requirements necessary for conformance to the standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)

FOREWORD

First published in 2000, Standard 126 is a joint project of ASHRAE and SMACNA, the Sheet Metal and Air Conditioning Contractors' National Association. It was created to provide methods of testing to determine the strength and durability characteristics of HVAC duct and fittings under various loading and environmental conditions. To the project committee's knowledge, no other publication covers all of the structural and durability tests as comprehensively as this standard, although individual tests are covered under other standards. The intent of this standard is to cover all duct shapes and materials.

A standardized set of comprehensive tests is used to ensure that products meet minimum structural requirements as well as to allow products to be compared to each other. Such tests should simulate structural stresses that the duct will experience in service and facilitate the application of safety factors. These tests include pressurizing the ductwork, applying superimposed loads, dropping weighted implements for impact or puncture, applying tension to the duct, bending flexible duct 180 degrees, subjecting the ductwork to temperature and humidity changes, and bursting or collapsing the ductwork under pressure. After an individual test or a series of tests, leakage tests may be conducted to determine the effect of a structural or durability test on a specimen. During a test or series of tests, the ductwork is observed to determine if there is degradation and permanent damage.

Pass/fail criteria are determined by the sponsoring agency, code officials, or other users of this standard. Recommended Acceptance Criteria are provided in Informative Appendix C.

This 2008 revision of the standard clarifies the title and scope to indicate that ductwork is defined to include fittings; modifies the support points in Figures 2a, 2b, 2c, and 3 as recommended by testing laboratories; adds language in Section 7.1 to specifically state that the standard's leakage test is not intended to determine duct-system leakage class as defined in the ASHRAE Handbook; and updates all references to their most current editions.

1. PURPOSE

This standard provides laboratory test procedures for the evaluation of HVAC air ducts and fittings.

2. SCOPE

2.1 This standard may be used to determine the structural strength, dimensional stability, durability, and leakage characteristics of HVAC air ducts and fittings.

2.2 This standard does not cover:

a. effects of aerosols, solid particulates, corrosive environments, or combustibility
b. long-term effects of extended service
c. seismic qualifications
d. underground ducts
e. plenums and equipment casings
f. supports for ductwork and fittings

3. DEFINITIONS

This section defines key terms used in this standard. For other definitions, refer to *ASHRAE Terminology of Heating, Ventilation, Air Conditioning, and Refrigeration.*[1]

accuracy (error): the ability of an instrument to indicate or record the true value of a measured quantity. The error of indication, which is the difference between the indicated value and the true value of the measured quantity, expresses the accuracy of an instrument. Accuracy is usually expressed as percentage of full scale.

density of standard air (ρ_s): 1.204 kg/m^3.

duct, HVAC: duct and fittings used for conveying air in residential, commercial, institutional, and industrial heating, ventilating, and air-conditioning systems.

joint: a connection of duct surface elements that is primarily intended to connect lengths of ductwork, to join intersecting ducts, or to join ducts and equipment.

leakage: the volumetric flow rate required to maintain a constant static pressure in a test specimen.

precision: the closeness of agreement among repeated measurements of the same physical quantity by the same method under the same conditions and with the same instrument.

random error: an error that causes readings to take random values on either side of some mean value. Measurements may be precise or imprecise depending on how well an instrument can reproduce subsequent readings of an unchanged input.

sealant: a material or product used to seal longitudinal duct seams, transverse duct joints, and ductwork penetrations. Products include liquids, mastics, tapes, gaskets, heat-activated material, and mastic with an embedded fabric.

seam: a connection of duct surface elements that is primarily oriented in the direction of airflow.

sponsor: a manufacturer, trade association, or some other group that is funding, sponsoring, or requiring ductwork tests in compliance with this standard.

systematic error: an error that persists and cannot be considered due entirely to chance. A systematic error can be corrected through calibration.

transverse joint: a joint that is used to assemble sections of duct together or connect them to fittings.