

HVAC AIR DUCT LEAKAGE TEST MANUAL



ANSI/SMACNA 016-2012

Inch-Pound Version



SHEET METAL AND AIR CONDITIONING CONTRACTORS'
NATIONAL ASSOCIATION, INC.

www.smacna.org

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SECOND EDITION – 2012



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FOREWORD

SMACNA first published a procedure for leakage testing of so-called medium and high pressure ductwork since January 1965. It appeared in Chapter 10 of the high velocity (later high pressure) construction standards and in Chapter 8 of the *“Balancing and Adjustment of Air Distribution Systems Manual”* of 1967 vintage. In the 1970’s energy conservation measures led to a decline in the use of truly high pressure commercial HVAC systems. Now, greater concern with the amount of leakage in systems of less pressure has evolved from the efforts of reducing carbon via energy saving strategies.

New research in the leakage rates of sealed and unsealed ductwork has disclosed a need for a better method of evaluating duct leakage. European countries introduced an evaluation approach using the surface area of the duct and the pressure in the duct as the basic parameters. SMACNA concluded that this approach is far superior to the arbitrary assignment of a percentage of fan flow rate as a leakage criteria. The surface area basis highlights the effect of system size and is now one of the primary factors of SMACNA duct leakage classifications.

Leakage testing on job sites disrupts productivity and is costly. Only recently has industry begun to recognize the extent of leakage of any in-line equipment. Designers must account for equipment leakage separately from duct leakage allowances as they evaluate system leakage. SMACNA encourages designers to specify equipment leakage control and to rely on prescriptive sealing of ductwork as measures that will normally lead to effective control of leakage without the need for extensive leakage testing. Non-Ducted Under Floor Air Distribution (UFAD) systems present a unique set of circumstances that make leakage testing a very time consuming process not fully covered in this standard. Further information on this topic can be found in the commentary of this manual.

Application of the information and guidance herein should facilitate design, improve system performance and reduce the difficulty of testing and balancing newly installed systems. SMACNA expresses appreciation to all of those whose knowledge and effort led to the introduction of this new publication.

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