

CONTENTS
ANSI/ASHRAE Standard 79-2024
Method of Test for Fan-Coil Units

SECTION	PAGE
Foreword	2
1 Purpose and Scope.....	2
2 Definitions	2
3 Test Conditions	3
4 Test Instruments	3
5 Test Apparatus.....	6
6 Installation of Fan Coil Under Test.....	10
7 Test Methods and Procedures	13
8 Calculations.....	15
9 Sound Measurement Methods and Procedures.....	21
10 Reference Properties and Data.....	22
11 References	22
Normative Appendix A: Primary Airflow Measurement	26
Normative Appendix B: Alternate Airflow Measurement	28
Informative Appendix C: Alternate Mixing-Tube Reference Dimensions	31
Informative Appendix D: Examples of Various Types of Exposed and Concealed Fan Coils.....	32

NOTE

Approved addenda, errata, or interpretations for this standard can be downloaded free of charge from the ASHRAE website at www.ashrae.org/technology.

© 2024 ASHRAE

180 Technology Parkway · Peachtree Corners, GA 30092 · www.ashrae.org · All rights reserved.
ASHRAE is a registered trademark of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
ANSI is a registered trademark of the American National Standards Institute.

(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

This standard prescribes laboratory methods of testing the capacity of fan-coil units. The 2024 edition includes updates to standard airflow tolerance, tolerance on water temperature rise (heating), and tolerance on air pressure difference between the test room and the unit in Table 1. Clarification of an alternate method to test for concealed fan coils and clarification of how to mark sound data presented in catalog or electronic format were added to Section 9.4. Airflow direction clarification was added to Figures 14–18.

This revision of ASHRAE Standard 79 falls under the Standard Committee classification of “standard method of measurement.” This standard was prepared under the auspices of ASHRAE. It may be used, in whole or in part, by association or government agency with due credit to ASHRAE. Adherence is strictly on a voluntary basis and merely in the interests of obtaining uniform standards throughout the industry.

1. PURPOSE AND SCOPE

1.1 Purpose. The purpose of this standard is to prescribe laboratory methods of testing fan-coil units to ensure uniform performance data for establishing ratings.

1.2 Scope. This standard includes procedures that

- a. describe and specify test instruments and apparatus,
- b. describe and specify laboratory test methods and procedures,
- c. describe and specify test data to be recorded,
- d. describe and specify calculations to be made from test data,
- e. define terms used in testing, and
- f. specify standard thermodynamic properties.

2. DEFINITIONS

equilibrium: for the purposes of this standard, a steady-state condition during which the fluctuations of variables being measured remain within the test tolerances given in Table 1 for 30 minutes.

evaporative equilibrium: the condition attained on a humidity measuring instrument when the humidity measurement has reached a stable and constant temperature.

external static pressure: the sum of the absolute values of the discharge static gage pressure and the inlet static gage pressure.

fan-coil unit: a factory-made assembly that provides air circulation caused by a difference in static pressure produced by an air-moving device, cooling or cooling and heating, and filtering of air but does not include the source of cooling or heating.

instrument accuracy: an instrument's ability to indicate or record the true value of a measured quantity.

instrument precision: statistical error of an instrument subjected to repeated measurements over a range of input values.

latent cooling capacity: the rate, expressed in Btu/h (W), at which the fan coil under test reduces the moisture content of the air passing through it.

sensible capacity: the rate, expressed in Btu/h (W), at which the fan coil under test reduces or increases the dry-bulb temperature of the air passing through it.

standard air: air weighing 0.075 lb/ft³ (1.2 kg/m³), which approximates dry air at 70°F (21.1°C) and at standard barometric pressure.

standard barometric pressure: a barometric pressure of 29.92 in. Hg (101.32 kPa).

test: the recorded group of readings of required test data taken while equilibrium is maintained and used in the computation of results, including

- those observed or recorded during a sufficient period to indicate that equilibrium was attained prior to the actual test and
- those recorded during the period of the test.

test condition tolerance: the maximum permissible deviations of the averages of the test observations from the standard or desired test conditions.