ANSI/ASHRAE Standard 79-2002 (RA 2006)
Reaffirmation of ANSI/ASHRAE Standard 79-2002

ASHRAE STANDARD

Method of Testing for Rating Fan-Coil Conditioners

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Approved American National Standard
ANSI

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NOTE

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(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 ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process.)

FOREWORD

This is a reaffirmation of ASHRAE Standard 79-2002. This standard falls under the Standards Committee classification of Standard Method of Measurement. This standard was prepared under the auspices of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE). It may be used, in whole or in part, by an 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.

This standard prescribes testing methods for the capacity of fan-coil units.

The changes made for the 2006 reaffirmation were updates to the references.

1. PURPOSE AND SCOPE

1.1 Purpose

The purpose of this standard is to prescribe laboratory methods of testing room fan-coil air conditioners to ensure uniform performance data for establishing ratings.

1.2 Scope

This standard includes procedures that

1. describe and specify test instruments and apparatus,
2. describe and specify laboratory test methods and procedures,
3. describe and specify test data to be recorded,
4. describe and specify calculations to be made from test data,
5. define terms used in testing, and
6. specify standard thermodynamic properties.

2. DEFINITIONS

room fan-coil air conditioner (hereinafter referred to as *fan coil*)**:** a factory-made assembly that provides the functions of forced circulation, cooling or cooling and heating, and filtering of air, but does not include the source of cooling or heating. This device is normally designed for free delivery of air into a room but may be applied with minimal ductwork having a static resistance generally not exceeding 0.25 in. of water (62 Pa). This device may be designed for furred-in application or with an enclosure for application within the conditioned space. This device is generally designed in sizes of air delivery capacity of 2,000 cfm (944 L/s) or less.

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.

evaporative equilibrium: the condition attained on a wet-bulb instrument when the wetted wick has reached a stable and constant temperature.

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

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

test run: the complete group of readings of required test data, which include:

total cooling capacity: the rate, expressed in Btu/h (W), at which the fan coil under test reduces the enthalpy 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.

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.

standard air: air weighing 0.075 lb/ft^3 (1.2 kg/m^3), 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 kPa).

forced circulation of air: air circulation caused by a difference in static pressure produced by an air-moving device.

3. TEST CONDITIONS

3.1 Variations. The methods provided in this standard may be used to determine fan-coil performance at various test conditions that may be prescribed in other standards or specifications.

3.2 Tolerances. In all cases, the test conditions shall be maintained within the tolerances specified in Section 8.6 during the prescribed test period.

4. TEST INSTRUMENTS

4.1 Temperature-Measuring Instruments

4.1.1 Types of Instruments. Temperature measurements shall be made with one or more of the following instruments:

1. Mercury-in-glass thermometers
2. Thermocouples
3. Electric resistance thermometers

4.1.2 Accuracy and Precision of the temperature-measuring instruments shall be within the following limits:

	Instrument Accuracy		Instrument Precision	
(1) Wet- and dry-bulb temperatures	±0.2°F	±0.1°C	±0.1°F	±0.05°C
(2) Water temperatures	±0.15°F	±0.08°C	±0.1°F	±0.05°C
(3) Nozzle air temperatures	±1.0°F	±0.5°C	±1.0°F	±0.5°C
(4) All other temperatures	±0.5°F	±0.3°C	±0.5°F	±0.3°C