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ANSI/ASHRAE Standard 164.2-2012 (RA2026), Method of Test for Residential Self-Contained Humidifiers

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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 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 provides rules for the testing of self-contained system humidifiers for residential applications. It was prepared by ASHRAE Standard Project Committee (SPC) 164. The cognizant technical committee is ASHRAE TC 5.11, Humidifying Equipment.

The purpose of this standard is to provide a uniform method for testing in a laboratory environment. Although the method of test originated in ANSI/AHRI Standard 620-2004, Performance Rating Of Self-Contained Humidifiers For Residential Applications*, the committee has developed this separate method of test to be used independently of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) rating standard so manufacturers, specifiers, installers, and users of central system residential humidifiers can test a humidifier's capacity under a variety of conditions with uniform results.*

Standard 164.2-2012 was prepared in cooperation with AHRI to utilize with ANSI/AHRI Standard 620-2004.

This is a reaffirmation of Standard 164.2-2012. This standard was prepared under the auspices of 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 guidelines throughout the industry. This version of the reaffirmation has no changes.

1. PURPOSE

This standard establishes a method of test for the humidification rate and power input of self-contained humidifiers for whole house applications.

2. SCOPE

2.1 The scope of this standard covers a method of test for the humidification rate of residential self-contained humidifiers that do not require other mechanical devices and are not connected to the central heating/ventilation system.

2.2 This method of test describes the test apparatus, conduct of the test, and information to be recorded.

2.3 Tests covered include methods for measuring energy input, water flow rate, water temperature, and water pressure to the test humidifier.

3. DEFINITIONS

humidification rate: a measure of the ability of a humidifier to add moisture to its surrounding atmosphere, expressed as a unit of weight of water evaporated per unit of time.

humidifier: a device designed to add moisture to the air.

portable humidifier: a type of humidifier that has the characteristics described in AHAM-HU-1, *Household Humidifiers*.[1]

self-contained humidifier: a humidifier that adds moisture to the air without the need of other mechanical devices and is not connected to the central heating/ventilation system.

shall: the word *shall* is to be understood as indicating requirements of this standard.

4. UNITS OF MEASUREMENT

4.1 Systems of Units. The International System of Units (le Système International d'Unités)[2] is employed in this standard. Values shall be based on the National Institute of Standards and Technology values, which in turn are based on the fundamental values of the International Bureau of Weights and Measures. Inch-pound units appear in parentheses (I-P) after SI units. Where necessary, equivalent I-P formulas are provided.

4.2 Basic Units. The unit of length is either the metre (foot), designated m (ft), or the millimetre (inch), designated mm (in.). The unit of mass is the kilogram (pound mass), designated kg (lb_m). The unit of time is the minute, designated min, or the second, designated s. The unit of temperature is degree Celsius (Fahrenheit), designated °C (°F).

4.3 Flow Rate and Velocity. The unit for the flow rate for air is litres per second (cubic feet per minute), designated L/s (cfm). The unit for the flow rate for water is kilograms per hour (pounds mass per hour), designated kg/h (lb_m/h). The unit for velocity is meters per second (feet per minute), designated m/s (fpm).

4.4 Pressure. The unit of pressure is the pascal or kilopascal (pounds per square inch, inch water gage, or the inch mercury column), designated Pa (psi, in. wg, or in. Hg). The inch mercury column shall be based on a one-inch column of mercury at 0°C (32°F), under standard gravity (*in vacuo*).

4.5 Power and Energy. In this standard, the unit of power is the kilowatt, designated kW.

5. INSTRUMENTS AND METHODS OF MEASUREMENT

5.1 Pressure. Pressure at a point shall be measured on an indicator, such as a manometer, a transducer, or an oil-filled gage. The instrument that is selected for a particular measurement shall meet the requirements of this standard.

5.1.1 Manometers and Other Air-Pressure-Indicating Instruments. Air pressure and atmospheric pressure shall be measured with electronic instruments, such as transducers or with manometers of the liquid column type using inclined or vertical legs, or with other instruments that provide a maximum error of 1% of the maximum observed reading or 1 Pa (0.005 in. wg), whichever is larger.

5.1.1.1 Averaging. Since the flows and the pressures measured in this standard are not expected to be steady, the pressure readings indicated on the instrument that is used can

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