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ANSI/ASHRAE Standard 164.1-2025
Method of Test for Residential Central-System Humidifiers

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Preview

NOTE

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FOREWORD

ANSI/ASHRAE Standard 164.1 provides rules for the testing central-system humidifiers for residential applications. It provides a uniform method for testing in a laboratory environment. Although the method of test originated in AHRI Standard 610, Performance Rating of Central System Humidifiers*, the project committee has developed this separate method of test to be used independently of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) rating standard so that manufacturers, specifiers, installers, and users of central-system residential humidifiers can test a humidifier's capacity under a variety of conditions with uniform results. This method of test was prepared in cooperation with AHRI to correspond with AHRI Standard 610.*

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 standard has been harmonized with ASHRAE Standard 41 series, which removed most calculations. The standard is also harmonized with AHRI 610. The 2025 edition of Standard 164.1 was updated to provide additional clarity on installation arrangements.

Standard 164.1 is the first in a series of four standards for the testing of humidifiers. Standard 164.2 addresses self-contained humidifiers for residential applications, Standard 164.3 addresses commercial and industrial isothermal humidifiers, and Standard 164.4 addresses commercial adiabatic humidifiers.

1. PURPOSE

This standard establishes a uniform method of laboratory testing for rating central-system residential humidifiers.

2. SCOPE

2.1 The scope of this standard covers a method of test for measuring the humidification rate of central-system residential humidifiers intended for use with forced-warm-air heating/cooling systems.

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

2.3 Tests covered include methods for measuring electrical power input, water flow rate, water temperature, and water pressure to the test humidifier. Included are airflow rate, static pressure, temperature, and relative humidity entering and maintained by the test apparatus.

2.4 Information resulting from the application of this test method is intended for use by manufacturers, specifiers, installers, and users of central-system residential humidifiers.

2.5 This test method does not apply to self-contained humidifiers, portable humidifiers, or humidifiers for commercial and industrial applications.

3. DEFINITIONS

central-system humidifier: a humidifier installed in, or discharges into, the airstream of an HVAC system.

chronometer: a timepiece that displays time in seconds and keeps time to the required accuracy.

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

humidifier: a device designed to add moisture to air.

heating or cooling unit: the unit that the humidifier is connected to or mounted within.

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

return duct humidifier: a humidifier that is connected to a horizontal duct and has the function of returning humidified air to the central system.

return plenum central-system humidifier: a humidifier that is connected to a vertical duct and has the function of returning humidified air to the central system.

room airflow: air introduced into a conditioned space to obtain a desired indoor atmospheric environment.

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