ANSI/ASHRAE Standard 41.6-1994 (RA 2006)
Reaffirmation of ANSI/ASHRAE Standard 41.6-1994

ASHRAE STANDARD

Standard Method for Measurement of Moist Air Properties

Approved by the ASHRAE Standards Committee on June 29, 1994, and reaffirmed on January 21, 2006; by the ASHRAE Board of Directors on June 30, 1994, and reaffirmed on January 26, 2006; and by the American National Standards Institute on August 30, 1994, and reaffirmed on January 27, 2006.

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Approved American National Standard
ANSI

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b. participation in the next review of the Standard,
c. offering constructive criticism for improving the Standard,
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NOTE

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(This foreword is not a 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.)

FOREWORD

This is a reaffirmation of ASHRAE Standard 41.6-1994. 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 is merely in the interest of obtaining uniform standards throughout the industry.

The changes made for the 1989 revision were:

- *moving "Definitions" in old Section 8 into Section 3*
- *moving old Subsection 3.2, "Instruments and Sensors," to new Section 5*
- *adding Subsection 7.5, "International Temperature Scale of 1990"*
- *adding Appendix D, "Calculation of Moist Air Properties"*

There were no changes made for the 2006 reaffirmation.

1. PURPOSE

1.1 This standard sets forth recommended practices and procedures for the measurement and calculation of moist air properties in order to promote accurate measurement methods for specific use in the preparation of other ASHRAE standards.

1.2 This standard recommends procedures for measurement of moist air properties in connection with

a. the establishment of the desired moist air environment for tests of heating, refrigerating, humidifying, dehumidifying, and other air-conditioning equipment and
b. the determination of the quantity of moisture in airstreams moving through or within such equipment or spaces.

2. SCOPE

The scope of this standard is to describe various instruments and techniques for the measurement of moist air properties. Attention is given to methods appropriate for use in ASHRAE standard methods of test for rating or for determining compliance with ASHRAE environmental standards. These descriptions include the range of conditions over which their use is practicable, the associated attainable accuracy, and proper techniques of use to achieve desired accuracy. Specific attention is given to the wet-bulb and dry-bulb psychrometer and the dew-point hygrometer, while other methods also are discussed. A discussion also is presented concerning calibration, reference standards, and traceability to standards of the National Institute of Standards and Technology (NIST) to help ensure accurate measurements.

3. DEFINITIONS OF PSYCHROMETRIC TERMS, INSTRUMENTS, AND INDICATION ELEMENTS

The relationship between various units in humidity measurement is shown in Figure 3-1.

3.1 Definitions and Calculations of Psychrometric Terms. Moist air is defined as a mixture of dry air and water vapor. The thermodynamic state of any two-component mixture is fixed if three independent properties are known. For moist air, two of the properties are usually temperature (t) and

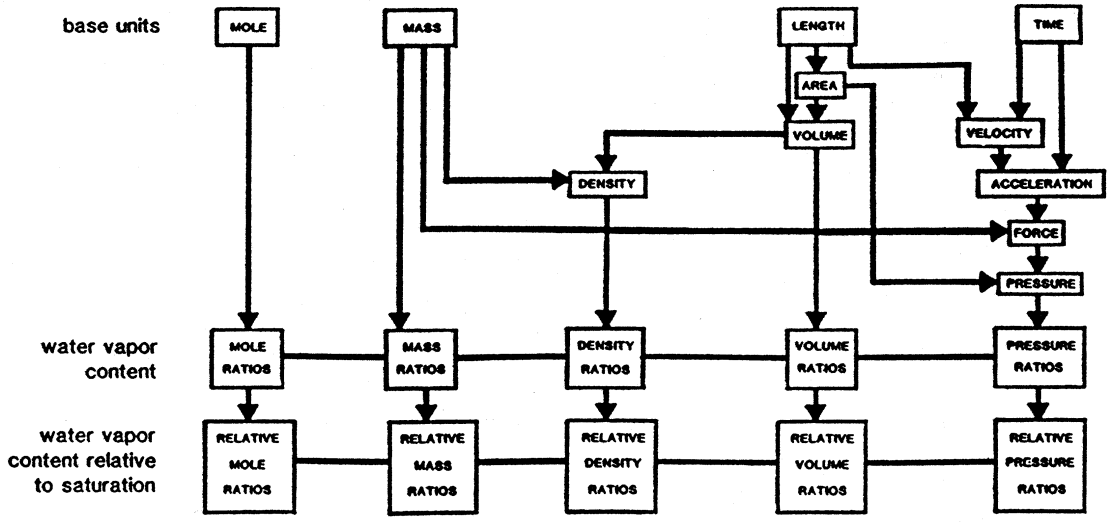

Figure 3-1