ASHRAE STANDARD

Weather Data for Building Design Standards

Approved by the ASHRAE Standards Committee on January 25, 2006; by the ASHRAE Board of Directors on January 26, 2006; and by the American National Standards Institute on January 27, 2006.

This standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a documented program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE Web site, http://www.ashrae.org, or in paper form from the Manager of Standards. The latest edition of an ASHRAE Standard may be purchased from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: orders@ashrae.org. Fax: 404-321-5478. Telephone: 404-636-8400 (worldwide), or toll free 1-800-527-4723 (for orders in US and Canada).

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SPECIAL NOTE

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ASHRAE obtains consensus through participation of its national and international members, associated societies, and public review.

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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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ANSI/ASHRAE Standard 169-2006, Weather Data for Building Design Standards

NOTE

When addenda, interpretations, or errata to this standard have been approved, they can be downloaded free of charge from the ASHRAE Web site at http://www.ashrae.org.

(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 new standard was created to provide a comprehensive source of climatic data for those involved in building design. It provides a variety of climatic information for use primarily in the design, planning, and sizing of building energy systems and equipment. It is anticipated that the information in this standard will represent a valuable resource available for referencing in building design standards.

The information presented in this standard has been compiled from ANSI/ASHRAE/IESNA Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential Buildings*,* ANSI/ASHRAE Standard 90.2-2004, Energy-Efficient Design of Low-Rise Residential Buildings*, and the* 2005 ASHRAE Handbook—Fundamentals*.*

1. PURPOSE

This standard provides recognized weather data for use in building-design and related equipment standards.

2. SCOPE

2.1 This standard covers weather data used in ASHRAE standards, including dry-bulb, dew-point, and wet-bulb temperatures; enthalpy; humidity ratio; wind conditions; solar irradiation; latitude; longitude; and elevation for locations worldwide.

2.2 This standard also includes statistical data, such as mean temperatures, average temperatures, mean/median annual extremes, daily ranges, heating and cooling degree-days and degree-hours, and hours and seasonal percentages within ranges of temperatures as well as bins.

3. DEFINITIONS, ABBREVIATIONS, AND ACRONYMS

3.1 Definitions

degree-day: the difference in temperature between the outdoor mean temperature over a 24-hour period and a given base temperature. For the purposes of determining building envelope requirements, the classifications are defined as follows:

(a) ***cooling degree-day base 50°F, CDD50, or 10°C, CDD10:*** for any one day, when the mean temperature is more than 50°F or 10°C, there are as many degree-days as degrees Fahrenheit or Celsius temperature difference between the mean temperature for the day and 50°F or 10°C. Annual cooling degree-days (CDDs) are the sum of the degree-days over a calendar year.

(b) ***heating degree-day base 65°F, HDD65, or 18°C, HDD18:*** for any one day, when the mean temperature is less than 65°F or 18°C, there are as many degree-days as degrees Fahrenheit or Celsius temperature difference between the mean temperature for the day and 65°F or 18°C. Annual heating degree-days (HDDs) are the sum of the degree-days over a calendar year.

3.2 Abbreviations and Acronyms

CDD	cooling degree-days
DB	dry-bulb temperature, °F or °C
DP	dew-point temperature, °F or °C
Elev	elevation above sea level, ft or m
Enth	enthalpy, Btu/lb or kJ/kg
HDD	heating degree-days
HR	humidity ratio, grains of moisture per lb of dry air or grams of moisture per kg of dry air
Lat	latitude, °N/S
Long	longitude, °E/W
MCDB	mean coincident dry-bulb temperature, °F or °C
MCWS	mean coincident wind speed, mph or m/s
MCWB	mean coincident wet-bulb temperature, °F or °C
N.A.	not available
PCWD	prevailing coincident wind direction, °; 0 = north, 90 = east
StdP	standard pressure at station elevation, psi or kPa
UTC	universal time coordinate; 0 is equal to Greenwich mean time (GMT)
WB	wet-bulb temperature, °F or °C
WMO#	World Meteorological Organization station identifier
WS	wind speed, mph or m/s

4. DESIGN DATA

Normative Appendix A comprises data from the *2005 ASHRAE Handbook—Fundamentals*, chapter 28, "Climatic Design Information," for 4,422 US, Canadian, and international locations. This information generally represents annual and monthly percentiles of occurrence of temperature, various measures of humidity, and wind speed for use in the design of building energy and ventilation systems. A sample of these climatic data is provided in print in Table A1 for Atlanta, Georgia, USA. Design conditions for all 4,422 locations are provided on the CD-ROM accompanying this standard.