



## 2013 ASHRAE handbook Fundamentals [

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Monografía

The 2013 ASHRAE Handbook (Fundamentals) covers basic principles and data used in the HVAC&R industry. The ASHRAE Technical Committees that prepare these chapters provide new information, clarify existing content, delete obsolete materials, and reorganize chapters to make the Handbook more understandable and easier to use. An accompanying CD-ROM contains all the volume's chapters in both I-P and SI units. Some of this volume's revisions are described as follows: Chapter 5, Two-Phase Flow, has new information on heat transfer in tube bundles; predictive techniques for saturated and subcooled boiling in tube bundles; subcooled boiling heat transfer; boiling, heat transfer, condensation, and pressure drop in mini- and microchannels; boiling/evaporation with enhanced surfaces; and much more. Chapter 9, Thermal Comfort, has new content on personal environmental control (PEC) systems; the effect of occupant and air motion on clothing insulation; and multisegment thermal physiology models. Chapter 10, Indoor Environmental Health, has new content on microbiology; health effects of fine particulate matter and noise; pathogens with potential for airborne transmission; semivolatile organic compounds (SVOCs); ozone; and dampness. Chapter 11, Air Contaminants, has updates for new ASHRAE research, plus added text and graphics on ultrafine particles, SVOCs, and health effects of various air contaminants. Chapter 14, Climatic Design Information, includes a complete replacement of the data tables for 6443 locations worldwide (an increase of 879 locations from the 2009 edition of the chapter). Each location's information now also includes monthly precipitation. Chapter 16, Ventilation and Infiltration, has added content from ASHRAE Standard 62.1-2010 on how to address multiple-zone recirculating systems. Chapter 18, Nonresidential Cooling and Heating Load Calculations, includes new plug load data, an elevation correction example, an equation summary, and an entirely new master example section based on the renovated ASHRAE headquarters building. Chapter 19, Energy Estimating and Modeling Methods, has new content on the comprehensive room transfer function (CRTF) method; ground heat transfer; a variable-speed vapor compression heat pump model; and validation, verification, and calibration. Chapter 21, Duct Design, includes new content on testing for HVAC system air leakage, a revised equation for resistance of flexible duct, and a revised table for duct roughness materials/shapes. Chapter 25, Heat, Air, and Moisture Control in Building Assemblies (Fundamentals), has new material from ASHRAE research on environmental weather loads (RP-1325) and thermal bridging details (RP-1365), plus modified airflow descriptions and new content on phase change materials. Chapter 26, Heat, Air, and Moisture Control in Building Assemblies (Material Properties), was extensively reorganized and updated with new content on insulation thermal conductivity data; insulation types; capillary-active insulation materials (CAIMs); and thermal resistance and air and water vapor permeability. Chapter 27, Heat, Air, and Moisture Control in Building Assemblies (Examples), introduced explicit definitions with a new example for thermal bridging, and revised introductions to moisture transport analysis examples. Chapter 29, Refrigerants, has added data on HFO-1234yf and HFO-1234ze(E) and expanded content on environmental properties and compatibility with construction materials. Chapter 30, Thermophysical Properties of Refrigerants, has added tables and diagrams for HFO-

1234yf and HFO-1234ze(E). Chapter 36, Measurement and Instruments, has added results from recent ASHRAE research (RP-1245) on the effects of duct fittings on measuring airflow in ducts, as well as a new example calculation. This volume is published, as a bound print volume and in electronic format on CD-ROM and online, in two editions: one using inch-pound (I-P) units of measurement, the other using the International System of Units (SI)

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