

# Ashrae Technical Faq

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## KARTER STEPHENS

[Environmental Guidelines for the Storage of Paper Records](#) IBM Redbooks  
 Health care HVAC systems serve facilities in which the population is uniquely vulnerable and exposed to an elevated risk of health, fire, and safety hazard. These heavily regulated, high-stakes facilities undergo continuous maintenance, verification, inspection, and recertification, typically operate 24/7, and are owner occupied for long life. The HVAC systems in health care facilities must be carefully designed to be installed, operated and maintained in coordination with specialized buildings services, including emergency and normal power, plumbing and medical gas systems, automatic transport, fire protections and a myriad of IT systems, all within a limited building envelope.  
[HVAC Troubleshooting Guide](#) John Wiley & Sons  
 Provides the latest information about indoor air quality problems and how to prevent and correct them. Packed with valuable information on how to: develop an indoor air quality building profile; create an indoor air quality management plan; identify causes and solutions to problems as they occur, and identify appropriate control strategies. Special sections cover: air quality sampling; heating, ventilating, and air conditioning systems; mold and moisture problems, and much more. In looseleaf binder with tabbed dividers.  
[ASHRAE Laboratory Design Guide](#) Amer Society of Heating  
 The Indoor Air Quality Guide: Best Practices for Design, Construction and Commissioning is designed for architects, design engineers, contractors, commissioning agents, and all other professionals concerned with IAQ. This comprehensive publication provides both summary and detailed guidance. The detailed guidance provides: Hundreds of internal and external links to invaluable IAQ resources Access to an incredible variety of in-depth information by topic to help you design construct and operate acceptable IAQ The CD that comes with the book contains the detailed guidance for implementing these strategies. Embedded in a digital version of the summary guidance information are hundreds of internal and external links to resources for the design, construction and commissioning of buildings with excellent indoor air quality.  
[Data Center Handbook](#) American Society of Heating Refrigerating and Air-Conditioning Engineers  
 The 2012 ASHRAE Handbook--HVAC Systems and Equipment discusses various systems and the equipment (components or assemblies) they comprise, and describes features and differences. This information helps system designers and

operators in selecting and using equipment. An accompanying CD-ROM contains all the volume's chapters in both I-P and SI units.

### Understanding Psychrometrics Ashrae

This guideline defines ventilation and then natural ventilation. It explores the design requirements for natural ventilation in the context of infection control, describing the basic principles of design, construction, operation and maintenance for an effective natural ventilation system to control infection in health-care settings.

### Ventilation Systems Ashrae

Understanding Psychrometrics serves as a lifetime reference manual and basic refresher course for those who use psychrometrics on a recurring basis and provides a four- to six-hour psychrometrics learning module to students; air-conditioning designers; agricultural, food process, and industrial process engineers; meteorologists and others.

### Indoor Air Quality Guide Engineering Handbook

"Gives data center facility designers and manufacturers a clear understanding of their facilities' design needs and allows them to accurately predict the equipment loads their facilities will need to accommodate. Also includes air and liquid cooling options that may be considered"--

### Environmental Systems Technology World Health Organization

A Practical, On-the-Job HVAC Guide Applicable to residential, commercial, and industrial jobs, this essential handbook puts a wealth of real-world information at your fingertips. HVAC Troubleshooting Guide shows you how to read, interpret, and prepare schedules, mechanical plans, and electrical schematics. This handy resource will aid you in your everyday tasks and keep you up to date with the latest facts, figures, and devices. The book includes numerous illustrations, tables, and charts, troubleshooting tips, safety precautions, resource directories, and a glossary of terms. HVAC Troubleshooting Guide helps you: Identify and safely use tools and equipment (both new and old) Use heat pumps and hot air furnaces Calculate ventilation requirements Work with refrigeration equipment and the new refrigerants Utilize control devices, including solenoids and relays Operate, select, and repair electric motors Work with condensers, compressors, and evaporators Monitor the flow of refrigerant with valves, tubing, and filters Comply with the Section 608 refrigerant recycling rule Program thermostats Insulate with batts, sheet, tubing covers, and foam Work with solid-state controls Understand electrical and electronic symbols used in schematics

### IBM z13s Technical Guide American Society of Heating Refrigerating and Air-Conditioning Engineers

Discusses pollution from tobacco smoke, radon and radon progeny, asbestos and other fibers, formaldehyde, indoor

combustion, aeropathogens and allergens, consumer products, moisture, microwave radiation, ultraviolet radiation, odors, radioactivity, and dirt and discusses means of controlling or eliminating them.

### Handbook of Air Conditioning and Refrigeration National Academies Press

"Focuses on needs of owners, architects and engineers who build and manage buildings in hot and humid climates; includes info on building enclosures, dehumidification, sustainability, mold avoidance, energy reduction, moisture management and techniques for reducing energy consumption in hot and humid climates, based on real-world field experience and ASHRAE research"--Provided by publisher.

### ASHRAE Laboratory Design Guide American Society of Heating Refrigerating and Air-Conditioning Engineers

"The ASHRAE Design Guide for Tall, Supertall, and Megatall Building Systems is concerned with HVAC, design, maintenance, and other factors for buildings 300 feet (91 m) or higher. The guide details the problems and possible solutions for tall, supertall, and megatall buildings"--

### ASHRAE Thermal Comfort Tool American Society of Heating Refrigerating and Air-Conditioning Engineers

There is often a mismatch of IT equipment environmental requirements with adjacent equipment requirements or with facility operating conditions and therefore a strong need to find common solutions and standard practices that facilitate IT equipment interchangeability while preserving industry innovation. Thermal Guidelines for Data Processing Environments provides a framework for improved alignment between IT equipment hardware manufacturers (including manufacturers of computers, servers, and storage products), data center designers, and facility operators and managers. This guide covers five primary areas: equipment operating environment guidelines for air-cooled equipment (six classes are defined), environmental guidelines for liquid-cooled equipment (five classes are defined), facility temperature and humidity measurement (to evaluate data center health), equipment placement and airflow patterns (a hot-aisle/cold-aisle layout is recommended), and equipment manufacturers' heat load and airflow requirements reporting. In reaction to the industry trend of increased energy efficiency for data center operation, this third edition of Thermal Guidelines for Data Processing Environments provides groundbreaking, vendor-neutral information that will empower data center designers, operators, and managers to better determine the impact of varying design and operation parameters. This book is the first in the ASHRAE Datacom Series, authored by ASHRAE Technical Committee 9.9, Mission Critical Facilities, Technology Spaces and Electronic Equipment. This series provides comprehensive

treatment of datacom cooling and related subjects.

*Indoor Air Quality Solutions for Stationary Engineers* Psychology Press

Provides the fundamentals, technologies, and best practices in designing, constructing and managing mission critical, energy efficient data centers Organizations in need of high-speed connectivity and nonstop systems operations depend upon data centers for a range of deployment solutions. A data center is a facility used to house computer systems and associated components, such as telecommunications and storage systems. It generally includes multiple power sources, redundant data communications connections, environmental controls (e.g., air conditioning, fire suppression) and security devices. With contributions from an international list of experts, The Data Center Handbook instructs readers to: Prepare strategic plan that includes location plan, site selection, roadmap and capacity planning Design and build "green" data centers, with mission critical and energy-efficient infrastructure Apply best practices to reduce energy consumption and carbon emissions Apply IT technologies such as cloud and virtualization Manage data centers in order to sustain operations with minimum costs Prepare and practice disaster recovery and business continuity plan The book imparts essential knowledge needed to implement data center design and construction, apply IT technologies, and continually improve data center operations.

*ASHRAE Pocket Guide for Air Conditioning, Heating, Ventilation, Refrigeration* American Society of Heating Refrigerating and Air-Conditioning Engineers

"Provides information on liquid cooling for datacom equipment centers. Concerned with energy efficiency"--

*The Inside Story* Ashrae

"Provides a summary of what is understood within ASHRAE about dampness-related health risks in buildings along with suggestions for HVAC system designers that can help avoid such risks as well as a simple and easily recognizable description of dampness that is sufficient to increase the probability of negative health effects and practical quantitative tools and techniques that can alert managers to the risk of a building or an indoor space becoming damp to an extent that affects health in the future"--

**Humidity Control Design Guide for Commercial and Institutional Buildings** American Society of Heating Refrigerating and Air-Conditioning Engineers

"Reference manual for planning, design, and operation of laboratory HVAC systems to reduce the laboratory's energy

footprint while ensuring safety, providing good comfort and indoor air quality, and protecting the integrity of experiments; includes online access to electronic design tools that illustrate features of laboratories and provide practical design aids"--

**2008 ASHRAE Handbook** American Technical Publishers  
**Procedures for Commercial Building Energy Audits** provides purchasers and providers of energy audit services with a complete definition of good procedures for an energy survey and analysis. It also provides a format for defining buildings and their energy use that will allow data to be shared in meaningful ways. This publication specifically avoids a "cookbook" approach, recognizing that all buildings are different and each analyst needs to exercise a substantial amount of judgment. Instead, **Procedures** sets out generalized procedures to guide the analyst and the building owner, and provides a uniform method of reporting basic information. Different levels of analysis are organized into the following categories: Preliminary Energy Use Analysis Level I Analysis "Walk-Through Analysis Level II Analysis" Energy Survey and Analysis Level III Analysis "Detailed Analysis of Capital-Intensive Modifications" The book comes with a CD that provides more than 25 guideline forms, with explanatory material, to illustrate the content and arrangement of a complete, effective energy analysis report. The CD provides these forms in both PDF and Word format, enabling you to customize and print each form. For the downloadable version, the PDF of the book and the guideline forms are included in a single .zip file. You will need WinZip or an equivalent program to open the file. ASHRAE Research Project 669 and ASHRAE Special Project 56.

**Building Air Quality** Amer Society of Heating HVAC Simplified (zip file) This text provides an understanding of fundamental HVAC concepts and how to extend these principles to the explanation of simple design tools used to create building systems that are efficient and provide comfortable and healthy environments. The text contains twelve chapters that review the fundamentals of refrigeration, heat transfer, and psychrometrics. Information from the ASHRAE Handbook "Fundamentals" is summarized and supplemented with items from industry sources. The remaining chapters assemble information from ASHRAE Handbooks, ASHRAE standards and manufacturer data present design procedures commonly used by professional engineers. Other topics include equipment selection and specification, comfort and IAQ, building assemblies, heating and cooling loads, air distribution system design, water distribution system design, electrical and control systems, design for energy efficiency, and

design for economic value. A suite of complementary spreadsheet programs that incorporate design and computation procedures from the text are provided on the CD that accompanies this book. These programs include psychrometric analysis, equipment selection, heating and cooling load calculation, an electronic "ductulator," piping system design, a ductwork cost calculator, and programs to evaluate building system demand and energy efficiency. Future updates to these programs can be found at [www.ashrae.org/updates](http://www.ashrae.org/updates). The downloadable version of this product comes as a zip file and includes a PDF of the User's Manual and all the supporting files located on the CD that accompanies the print version. You must have WinZip to open the download.

**ASHRAE Design Guide for Tall, Supertall, and Megatall Building Systems** Ashrae

"The book covers topics such as exhaust hoods, primary air systems, process cooling, air treatment, exhaust stack design, airflow patterns and system balancing, energy recovery, the laboratory commissioning process, and the economics of both initial and life-cycle costs. A dedicated chapter gives guidance on laboratories that specialize in biological containment and animal research, addressing envelope design, system reliability, redundancy, proper space pressurization, biohazard containment and control, product protection, and sanitation. Updated to reflect current standards and industry practices, this second edition also adds two new chapters: one on high-performance building design concepts for sustainability and one with guidelines on evaluating airflow patterns and contaminant concentrations using computational fluid dynamics (CFD) computer modeling." --

*2019 ASHRAE Handbook* Ashrae

The ASHRAE Pocket Guide is packed with practical and useful information and is designed for immediate use. This eighth edition, revised and expanded for 2013, includes properties for new refrigerants, new data on refrigerant safety, ventilation requirements for residential and nonresidential occupancies, occupant thermal comfort, extensive data on sound and vibration control, thermal storage, radiant-panel heating and cooling, air-to-air energy recovery, space air diffusion data, equipment heat load data, combustion turbines, fuel cells, ultraviolet lamp systems, and more. This edition's updates include data from the four current volumes of the ASHRAE Handbook series, including the 2013 ASHRAE Handbook--Fundamentals, and from the 2010 and 2013 editions of ASHRAE Standards 15, 34, 55, 62.1, 62.2, and 90.1.