# Astm Standards On Indoor Air Quality

**#ASTM standards #indoor air quality #IAQ guidelines #air quality testing #environmental health**

Discover essential ASTM standards and specifications governing indoor air quality (IAQ). These comprehensive guidelines are vital for ensuring healthy and safe environments, addressing concerns related to pollutants, ventilation, and general air purity within buildings. Learn how adherence to these standards contributes significantly to environmental health and occupant well-being.



## ASTM Standards on Indoor Air Quality

A collection of 29 standards for indoor air investigators and researchers, and for those managing air quality in buildings, designed to assist in assessment and evaluation of indoor air quality. Purpose of the standards is to establish consistent and reliable methods for sampling and analysis of ind

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Based on presentations at a 1994 Symposium, these detailed papers review source/sink characterization; design, construction, characterization, and operation of test chambers and facilities; testing protocols for determining emission factors and sink absorption/desorption rates; models for predicting

## Characterizing Sources of Indoor Air Pollution and Related Sink Effects

People live in indoor environment about 90% of lifetime and an adult inhales about 15 kg air each day, over 75% of the human body’s daily mass intake (air, food, water). Therefore, indoor air quality (IAQ) is very important to human health. This book provides the basic knowledge of IAQ and highlights the research achievements in the past two decades. It covers the following 12 sections: introduction, indoor air chemicals, indoor air particles, measurement and evaluation, source/sink characteristics, indoor chemistry, human exposure to indoor pollutants, health effects and health risk assessment, IAQ and cognitive performance, standards and guidelines, IAQ control, and air quality in various indoor environments. It provides a combination of an introduction to various aspects on IAQ studies, the current state-of-knowledge, various advances and the perspective of IAQ studies. It will be very helpful for the researchers and technicians in the IAQ and the related fields. It is also useful for experts in other fields and general readers who want to obtain a basic understanding of and research advances in the field of IAQ. A group of experts in IAQ research have been recruited to write the chapters. Their research interests and experience cover the scope of the book. In addition, some experienced experts in IAQ field have been invited as advisors or reviewers to give their comments, suggestions and revisions on the handbook framework and the chapter details. Their contribution guarantees the quality of the book. We are very grateful to them. Last but not least, we express our heartfelt thanks to Prof. Spengler, Harvard University, for writing the foreword of the current Handbook of Indoor Air Quality both as a pioneer scientist who contributed greatly to indoor air science and as an Editor-in-chief of Handbook of Indoor Air Quality 2001, 1st ed. New York: McGraw-Hill. In addition to hard copies, the book is also published online and will be updated by the authors as needed to keep it aligned with current knowledge. These salient features can make the handbook fresh with the research development.

## Modeling of Indoor Air Quality and Exposure

IAQ investigators are given the tools to conduct thorough IAQ investigations, be knowledgeable about ventilation system components, occupant concerns and symptoms, sources of chemical and biological contaminants, IAQ sampling methods, interpreting sampling data, and current IAQ guidelines, standards and practices. Causes and solutions for common IAQ problems are given, along with guidance for special environments, and practical resources (checklists and forms) to help resolve IAQ problems.

## Handbook of Indoor Air Quality

Indoor Air Pollution has become a major topic in environmental research and health. Most people spend more than 80% of their time in buildings and are exposed to a broad range of pollutants from indoor sources such as building materials, furniture, carpets and textiles, heating and cooking, household and consumer products, etc. The volume provides a comprehensive review of the major indoor air pollutants: volatile organic compounds, biocides, indoor particles and fibres, combustion products and micro-organisms and their metabolites. Sources and sinks of air pollutants in indoor environments and their chemistry are distinctly different from ambient air pollution, even though the latter may influence indoor air quality. Adsorption and desorption processes, the pollutant source dynamics, gas phase reactions and kinetics - including the fate and final chemical destiny of chemically unstable intermediate compounds - are topics of scientific research as well as the evaluation of their sensory impact and irritation potential. Guidelines for assessing indoor pollution and a broad range of analytical methods have been recently developed and are reviewed by internationally renowned scientists. The specific characteristics of indoor air pollution in developing countries due to the widespread use of open fires for cooking, heating and lighting are analysed as well as the Chinese strategies to address the growing pollution problems by air pollution in its modern building stock.

## The IAQ Investigator's Guide

Contains papers presented at an October 1999 symposium held in New Orleans, Louisiana, on cabin air quality measurements, chemicals and toxicity, standards, modeling and control of cabin air quality, cabin air quality and emerging issues, and relationships between cabin environment factors and comfo

## Symposium on Air-Pollution Measurement Methods

The book is derived from a symposium prompted by the growing concern for air quality in homes, offices and schools, and the need for better design of investigations about indoor air quality problems and solutions. Numerous chemical and physical factors influence the indoor concentrations of contaminants. The multiplicity of these factors makes the investigation design process complex. So, well-conceived designs and protocols form a crucial starting point for successful measurement programs. "Design" of a study relates to developing a general strategy or approach ; "protocols" refers to specific procedures to be followed in conducting a study. This document aims to provide information on designs and protocols used in different types of indoor air quality monitoring studies and to supply learning opportunities through shared experience

## Indoor Air Pollution

Indoor environmental quality (IEQ) is influenced by building design; heating, ventilation, and air-conditioning systems; and construction materials, as well as by building operations, maintenance, and housekeeping procedures. Increasing evidence suggests that adverse health outcomes in employees, students, hospital patients, and others are linked to the presence of indoor pollutants and other aspects of poor-quality indoor environments. Implementing Health-Protective Features and Practices in Buildings explores this issue and discusses ongoing research and possible strategies for implementing changes in standards and practices for indoor environmental quality.

## Air Quality and Comfort in Airliner Cabins

The atmosphere may be our most precious resource. Accordingly, the balance between its use and protection is a high priority for our civilization. While many of us would consider air pollution to be an issue that the modern world has resolved to a greater extent, it still appears to have considerable influence on the global environment. In many countries with ambitious economic growth targets the acceptable levels of air pollution have been transgressed. Serious respiratory disease related problems have been identified with both indoor and outdoor pollution throughout the world. The 25 chapters of this

book deal with several air pollution issues grouped into the following sections: a) air pollution chemistry; b) air pollutant emission control; c) radioactive pollution and d) indoor air quality.

## Design and Protocol for Monitoring Indoor Air Quality

Eine komplett überarbeitete Zusammenfassung gesetzlicher Vorschriften zur Definition, Verwendung, Handhabung, Lagerung und Entsorgung von Gefahrstoffen. Unentbehrlich für Umweltingenieure, -techniker und -manager! Fast 40 Prozent des Materials wurde neu aufgenommen oder aktualisiert; so werden jetzt auch die Bodenbehandlung, die Vermeidung von Umweltverschmutzungen sowie das Prozeßsicherheitsmanagement besprochen. (10/99)

## International Performance Measurement & Verification Protocol: Concepts and Practices for Improved Indoor Environmental Quality, Volume II

A comprehensive resource that builds a bridge between engineering disciplines and the building sciences and trades, Forensic Engineering: Damage Assessments for Residential and Commercial Structures provides an extensive look into the world of forensic engineering. With a focus on investigations associated with insurance industry claims, the book describes methodologies for performing insurance-related investigations including the causation and origin of damage to residential and commercial structures and/or unhealthy interior environments and adverse effects on the occupants of these structures. Edited by an industry expert with more than 30 years of experience, and authors with more than 100 years of experience in the field, the book takes the technical aspects of engineering and scientific principles and applies them to real-world issues in a non-technical manner. It provides readers with the experiences, investigation methodologies, and investigation protocols used in, and derived from completing thousands of forensic engineering investigations. It begins with providing a baseline methodology for completing forensic investigations and closes with advice on testifying as an expert witness. Much of what must be known in this field is not learned in school, but is based upon experience since recognizing the cause of a building system failure requires a blending of skills from the white collar and blue collar worlds. Such knowledge can be vital since failures (e.g., water entry) often result from construction activities completed out of sequence.. This book details proven methodologies based on over 7,000 field investigations, methodologies which can be followed by both professionals and laymen alike.

## Implementing Health-Protective Features and Practices in Buildings

Discusses the measurement and control of air moving inside buildings and between the inside and outside in 17 papers and discussions from a symposium in Dallas/Fort Worth in October 1993. After an overview of the subject, covers air movement, ventilation, and indoor air quality; window air leakage;

## Chemistry, Emission Control, Radioactive Pollution and Indoor Air Quality

Lack of funding is the number one project killer. Most organizations do not have extra cash lying around, therefore most projects must be financed to get approval. Your energy project may be one of many potential projects from which the CFO can choose only a few. If you present your proposal with positive cash flow, your project will stand-out from the crowd. Filled with practical yet innovative financing methods, Handbook of Financing Energy Projects provides effective solutions to finance problems. The authors delineate the key success factors for structuring a financed energy project and getting it approved. They examine and assess the full scope of current project financing, including energy service performance contracting, rate of return analysis, and energy savings measurement and verification. You get all the facts you need to assess a project's payback in advance, avoid potential risks and hidden costs, and assure that their energy projects are an economic success. There are many correct ways to assemble and finance an energy management project. The possibilities are limited only by your creativity. This book explores successful solutions for every situation and builds increased confidence in your understanding of the many successful ways to assemble and finance an energy management project.

## Hazardous Materials and Hazardous Waste Management

"This practical desk reference is structured to serve as a guide and information resource - both on treating existing indoor air problems effectively - and on prevention costly IAQ problems from occurring in the first place. Finding solutions to indoor air quality problems is often a complex, multifaceted,

multidisciplined endeavor. A single discipline approach from the environmental engineer, the industrial hygienist, or the medical doctor, unfortunately tends to narrow both the control and the treatment options. This book cuts across these professions without being limited by the specificity and bias of any one discipline, to offer those concerned with the total facility a broader, more comprehensive approach to managing indoor air quality and mitigating indoor air quality problems. The third edition has undergone extensive updates and editing in response to the rapid pace of changes end advances in the IAQ industry - most notably the new chapter on building security and the increased emphasis on mold-related issues."--Jacket.

## Forensic Engineering

Understanding Indoor Air Quality presents a comprehensive examination of indoor air pollution that addresses the scope, origins, social context, and human health consequences of this emerging public health issue. Topics including the history, social context, and point sources of pollutants and their subsequent consequences are discussed. New and practical approaches for the diagnosis of indoor air quality problems are also addressed. The book's extensive coverage of indoor air pollution makes it essential for physicians, nurses, industrial hygienists, safety professionals, building owners and managers, office managers and workers, as well as others concerned with this problem.

## Airflow Performance of Building Envelopes, Components, and Systems

Indoor Air Quality: Sampling Methodologies provides environmental professionals and industrial hygienists with the latest information available in "indoor air quality sampling." In most instances, there are no established government protocols. In this book, the author presents prominent contributions and discusses the practical concerns that determine which sampling approach is best for a given situation. The author defines and clarifies indoor air quality and its historic background. She presents a diagnostic approach to addressing health concerns, brief overview of air handling systems, observations to be made regarding indoor activities, information regarding air emissions from other buildings, and a discussion of individual susceptibilities to various substances. The book covers sampling strategies, sampling/analytical protocols, suggested uses for these protocols, and a means for interpreting results. A one-of-a-kind, practical guide for assessing indoor air quality, this book gives you step-by-step instructions for all sampling tasks and includes background information, occurrence and uses of contaminants, exposure and diagnostic sampling and analytical protocols, and helpful hints based on the author's observations and experience. It shows you how to develop a theory and follow it through to identification of unknown air contaminants. The book contains more than 150 charts, tables, photographs, and drawings and includes an extensive glossary and symptoms index. No other book offers you the concise, in-depth, and practical coverage you will find in Indoor Air Quality: Sampling Methodologies.

## Guidelines For Monitoring Indoor Air Quality

Covering the fundamentals of air-borne particles and settled dust in the indoor environment, this handy reference investigates: * relevant definitions and terminology, * characteristics, * sources, * sampling techniques and instrumentation, * exposure assessment, * monitoring methods. The result is a useful and comprehensive overview for chemists, physicists and biologists, postgraduate students, medical practitioners, occupational health professionals, building owners and managers, building, construction and air-conditioning engineers, architects, environmental lawyers, government and regulatory professionals.

## Annual Report to Congress

Interest in indoor air quality (IAQ) is growing at public, political and scientific levels. Complaints about poor IAQ, associated with acute symptoms such as mucous irritation, headaches and bad odor occur frequently, particularly in the office environment, where typical patterns of symptoms often occur, leading to the coining of the term `Sick Building Syndrome'. In the present book, internationally known experts address the following issues: the dynamics of the indoor environment and strategies for indoor measurement chemical and microbiological pollution, important species, sources and detection methods effects of indoor pollution, in particular sensory irritation, including odor airway, eye and skin irritation by organic indoor pollutants and their assessment immune effects, including allergic sensitization chemical hyper-responsiveness controlled human reactions to organic pollutants building investigation: approaches and results source characterization and control criteria, norms and

techniques in indoor air pollution, and regulatory aspects. The complex, multifactorial nature of sick building syndrome requires multidisciplinary collaboration from very diverse fields. It is evident that communication between researchers coming from very different areas, all speaking their own language, is a difficult task. This book, presenting as it does the state of the art on sick buildings and how to cure them, is a sound foundation on which to build for the future.

## Handbook of Financing Energy Projects

During the last two decades, outdoor air pollution has decreased in the United States and in many other industrial nations. But many hazardous pollutants have been found in offices, cars, homes, and hospitals. Outbreaks of illness related to the noninjdustrial work environment have been reported with increasing frequency. And "sick-building," or "tight-building," syndrome has been recognized as a new and serious threat to public health. Indoor Air Pollution: A Health Perspective outlines current research on the subject and examines effotrs to regulate the quality of indoor air. Contributors—including epidemiologists, clinicians, risk assessorsm experts in air monitoring, microbiologies, and engineers—discuss methodologies used in measuring exposures to pollution, strategies for imporving indoor air quality, and other issues. They also assess the health effects of specific pollutants: tobacco smoke, carbon monoxide, wood smoke, nitrogen dioxide, biological agents, formaldehyde, and radon.

## Managing Indoor Air Quality

Residential Exposure Assessment: A Source Book is the result of a multiyear effort known as the Residential Exposure Assessment Project (REAP) which was initiated by the Society for Risk Analysis and the International Society of Exposure Analysis. This textbook is the primary product of the REAP and it contains contributions from over 30 professionals from a variety of disciplines such as chemistry, biology, physics, engi neering, industrial hygiene, toxicology, pharmacology, and environmental law, reflecting the diverse knowledge and resources necessary to assess and manage potential exposures occurring in and around the home. Expert working groups were organized for each of the 13 chapters to address such issues as U. S. legislation relevant to products used in and around the residence, methods for measuring and modeling exposures across multiple pathways and routes, and distributional data available for key residential exposure factors. This volume is a compendium of information about predictive methods and tools, monitoring methods, data sources, and key variables that characterize exposures in the residential setting. It presents approaches for doing exposure assessments in and around all types of residences. The purpose of the Source Book is to provide a resource for use in educational programs and for "practitioners" of residential exposure assessment. Accordingly, this book is intended for risk assessors, exposure assessors, students, initi ates new to the concept of risk assessment, industrial hygienists assessing health hazards in the home, engineers, and monitoring specialists.

## Understanding Indoor Air Quality

First published in 1985. This book seeks to fill the gap of publicly available and understandable information on the subject of indoor air pollution and its public health effects. Its purpose is to provide general information on indoor air pollution sources and the pollutants commonly found indoors, and also to explore the potential health effects arising from exposure to these pollutants

## Annual Book of Astm Standards, 1997

Indoor Air Quality