



U.S. Environmental Protection Agency

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[Find Out How to Order Any of These Publications](#)

ASTHMA

Clear Your Home of Asthma Triggers: Your Children Will Breathe Easier

Learn about simple steps you can take to reduce the five most common asthma triggers in your home to improve your and/or your children's asthma. This brochure educates readers about environmental asthma triggers, and highlights the importance of controlling them in order to avoid provoking asthma episodes. It describes five asthma triggers, and suggests simple measures to help curb their presence in the home. The brochure is suitable for a broad audience, with a particular emphasis on parents and care givers of asthmatics. EPA Document Number **402-F-99-005**, July 1999. You can get a PDF version ([asthma.trifold.pdf](#) - 244 KB) of this brochure (you will need [Adobe Acrobat Reader](#) to view the file). Visit our [Asthma web site](#)!

Mantenga su hogar libre de los factores que pueden provocar el asma
¡Sus niños respirarán mejor! ([asthma.trifold.spanish.pdf](#) - 280 KB PDF
file)



CARBON MONOXIDE

Protect Your Family and Yourself from Carbon Monoxide Poisoning

Discusses health hazards associated with exposure to carbon monoxide (CO), a colorless, odorless gas which can cause headaches, dizziness, nausea, faintness, and, at high levels, death. Provides guidance on what to do if you think you are suffering from CO poisoning and what to do to prevent exposure to CO. Also included is a brief discussion about carbon monoxide detectors. EPA Document Number **402-F-96-005**, October 1996.

Proteja su vida y la de su familia: Evite el envenenamiento con monóxido de carbono (EPA Document Number **402-F-97-004**)

*The Carbon Monoxide fact sheet has also been translated into: Vietnamese (EPA Document Number **402-F-99-004C**), Chinese (EPA Document Number **402-F-99-004A**), and Korean (EPA Document Number **402-F-99-004B**)*
[All are available from IAQ INFO 1-800-438-4318.]

What You Should Know About Combustion Appliances and Indoor Air Pollution

Answers commonly-asked questions about the effect of combustion appliances (e.g., fuel-burning furnaces, space heaters, kitchen ranges, and fireplaces) on indoor air quality and human health. Describes other sources of combustion pollutants in and around the home. Suggests ways to reduce exposure to such pollutants and encourages proper installation, use, and maintenance of combustion appliances. This brochure was prepared by the U.S. Consumer Product Safety Commission, the American Lung Association, and the EPA. EPA Document Reference Number **400-F-91-100**, 1991

The "Senseless" Killer

Describes symptoms of carbon monoxide poisoning, sources of carbon monoxide in the home, and actions that can reduce the risk of carbon monoxide poisoning. This leaflet was prepared by the U.S. Consumer Product Safety Commission, CPSC Publication #CPSC-464, 1993.

**ENVIRONMENTAL TOBACCO SMOKE (ETS)/SECONDHAND SMOKE (SHS)****Take the Smoke-Free Home Pledge Brochure**

Breathing secondhand smoke can be harmful to your children's health. You can protect your children by making your home smoke-free. Take the Smoke-Free Home Pledge by calling the toll-free Smoke-Free Home Pledge Hotline at 1-800-513-1157 and protect your children from the health risks of secondhand smoke. EPA **402-K-00-004**, April 2000

Secondhand Smoke: What You Can Do As Parents, Decisionmakers, and Building Occupants

Defines secondhand smoke and describes health risks from exposure to secondhand smoke. This leaflet provides steps to take to reduce the

secondhand smoke. This leaflet provides steps to take to reduce the health risks of passive smoking in the home, in the workplace, in restaurants and bars, and other indoor places. U.S. EPA, EPA Document Number **402-F-93-004**, July 1993.

HUMO de segunda mano: ¿Qué puede hacer usted sobre el humo de segunda mano como padre, personal directivo y ocupante de un edificio? 402-F-93-004A

(This brochure is also available in Chinese from IAQ INFO, use the reference number EPA-402-F-93-004B)

Setting the Record Straight: Secondhand Smoke Is a Preventable Health Risk
EPA Document Number **402-F-94-005**, June 1994

Provides detailed responses to the specific criticisms of EPA's assessment of lung cancer data included in the 1993 EPA Office of Research and Development (ORD) report, ***Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*** (EPA/600/6-90/006 F) [The ETS Risk Assessment is also available from IAQ INFO]. EPA stands by its 1992 report, which found that secondhand smoke causes lung cancer in nonsmoking adults and increases the risk of bronchitis, pneumonia, and asthma in children.

Children and Secondhand Smoke

This straightforward black&white brochure was specifically designed for easy distribution. A [PDF version of the brochure](#) is also available that can be printed off and copied for distribution. The brochure exemplifies the focus of the Indoor Environments Program's efforts to minimize the exposure of secondhand smoke to children indoors. EPA Document Number **402-F-99-003**, March 1999.

Este folleto en blanco y negro, escrito en forma clara y sencilla, fue diseñado específicamente para una distribución fácil. [Una versión en PDF](#) (67KB) del folleto también se puede imprimir y copiar para ser distribuida. El folleto ejemplifica el enfoque en los esfuerzos del Programa de Ambientes Interiores para minimizar la exposición de los niños al humo de tabaco de segunda mano en ambientes interiores. El número de folleto de la EPA (siglas en inglés) es el 402-F-99-003, marzo de 1999.

Fact Sheet: *Respiratory Health Effects of Passive Smoking*

Describes EPA's major assessment of the respiratory health risks associated with exposure to environmental tobacco smoke (ETS), ***Respiratory Health Effects of Passive Smoking: Lung Cancer and Other Disorders*** (EPA/600/6-90/006 F). This landmark assessment concluded that widespread exposure to ETS in the U.S. presents a serious and substantial public health risk. EPA Document Number **43-F-93-003**, January 1993.



IAQ in HOMES/RESIDENCES

The Inside Story: A Guide to Indoor Air Quality

This is our most popular and comprehensive publication on the subject

This is our most popular and comprehensive publication on the subject of Indoor Air Quality. It describes sources of air pollution in the home and office, corrective strategies, and specific measures for reducing pollutant levels. This illustrated booklet covers all major sources of pollution such as radon, household chemicals, biological contaminants, carbon monoxide, formaldehyde, pesticides, asbestos, and lead. Includes a glossary and a list of sources for additional information. Written in easy-to-understand language for the general consumer. U.S. EPA and U.S. CPSC, EPA Document #402-K-93-007, April 1995.

Should You Have the Air Ducts In Your Home Cleaned?

This publication is intended to help consumers answer this often confusing question. The guide explains what air duct cleaning is, provides guidance to help consumers decide whether to have the service performed in their home, and provides helpful information for choosing a duct cleaner, determining if duct cleaning was done properly, and how to prevent contamination of air ducts. EPA-402-K-97-002, October 1997.

Ozone Generators That Are Sold As Air Cleaners

The purpose of this document (which is only available via this web site) is to provide accurate information regarding the use of ozone-generating devices in indoor occupied spaces. This information is based on the most credible scientific evidence currently available. Whether in its pure form or mixed with other chemicals, ozone can be harmful to health. Some studies show that ozone concentrations produced by ozone generators can exceed health standards even when one follows manufacturer's instructions. Available scientific evidence shows that, at concentrations that do not exceed public health standards, ozone is generally ineffective in controlling indoor air pollution. The public is advised to use proven methods of controlling indoor air pollution.

Fact Sheet: Residential Air Cleaners - Indoor Air Facts No. 7

Discusses air cleaning as a method of reducing pollutants in indoor air. Lists types of air cleaners for the home, factors to consider in selecting an air cleaner, and sources of additional information. U.S. EPA, Office of Air and Radiation, EPA Document Number 20A-4001, February 1990.

Fact Sheet: Use and Care of Home Humidifiers - Indoor Air Facts No. 8

Explains that some types of home humidifiers can disperse microorganisms from their water tanks into the indoor air. Describes the different types of humidifiers and provides recommendations for their use and maintenance. EPA Document Number 402-F-91-101, February 1991.

Fact Sheet: Flood Cleanup: Avoiding Indoor Air Quality Problems

Discusses steps to take when cleaning and repairing a home after flooding. Excess moisture in the home is cause for concern about indoor air quality primarily because it provides breeding conditions for microorganisms. This fact sheet provides tips to avoid creating indoor air quality problems during cleanup. U.S. EPA, EPA Document Number 402-F-93-005, August 1993.

Residential Air-Cleaning Devices: A Summary of Available Information

Describes the general types of residential air cleaners and their effectiveness in reducing pollutants such as particles and gaseous contaminants. This detailed booklet discusses additional factors to consider when deciding whether to use an air cleaner, and provides guidelines to compare them. U.S. EPA, EPA Document Number **400-1-90-002**, February 1990.

Asbestos In Your Home

This document discusses health effects of asbestos exposure, identifies common products and building materials from the past that might contain asbestos, and describes conditions which may cause release of asbestos fibers. Describes how to identify materials that contain asbestos and how to control an asbestos problem. Explains role of asbestos professionals and use of asbestos inspectors and removal contractors. This brochure was prepared by the American Lung Association, the U.S. Consumer Product Safety Commission, and the EPA. EPA Document Reference Number **400-K-90-100**, 1990

Biological Pollutants In Your Home

This document explains indoor biological pollution, health effects of biological pollutants, and how to control their growth and buildup. One third to one half of all structures have damp conditions that may encourage development of pollutants such as molds and bacteria, which can cause allergic reactions--including asthma--and spread infectious diseases. Describes corrective measures for achieving moisture control and cleanliness. This brochure was prepared by the American Lung Association and the U.S. Consumer Product Safety Commission. EPA Document Reference Number **402-F-90-102**, January 1990.

What You Should Know About Using Paint Strippers

Paint strippers contain chemicals that loosen paint from surfaces. These chemicals can harm you if not used properly. Some paint stripping chemicals can irritate the skin and eyes, or cause headaches, drowsiness, nausea, dizziness, or loss of coordination. Some may cause cancer, reproductive problems, or damage of the liver, kidney, or brain. Others catch fire easily. Proper handling and use of paint strippers will reduce your exposure to these chemicals and lessen your health risk. This brochure was prepared with EPA and the U. S. Consumer Product Safety Commission, February 1995, CPSC Publication # F-747-F-95-002.

The U.S. EPA's Office of Pollution Prevention and Toxics (OPPT) and the Consumer Product Safety Commission (CPSC), in cooperation with the Montgomery County, Maryland Department of Environmental Protection has published a brochure on, "Healthy Indoor Painting Practices," which is available as a downloadable PDF file from the CPSC web site (<http://www.cpsc.gov/cpscpub/pubs/456.pdf>) or from EPA at:

<http://www.epa.gov/opptintr/exposure/docs/inpaint5.pdf>. This safety guide was formulated for residents, property managers and painters who are strongly urged to follow several simple steps to reduce possible adverse reactions to chemicals emitted from paints. The brochure is also available in Spanish <http://www.epa.gov/opptintr/exposure/docs/sp->

pai-1.pdf. EPA Publication Number 744-F-00-011, May 2000.

An Update on Formaldehyde

The U.S. Consumer Product Safety Commission, with assistance of EPA, developed this brochure to provide information about formaldehyde in indoor air. The brochure tells consumers where they may come in contact with formaldehyde, how it may affect their health, and how their exposure to formaldehyde might be reduced. The publication was updated by CPSC in 1997.



LARGE BUILDINGS/OFFICES

IAQ Building Education and Assessment Model (I-BEAM) Computer Software

I-BEAM is computer software for use by building professionals and others interested in indoor air quality in commercial buildings. I-BEAM updates and expands EPA's existing Building Air Quality guidance and is designed to be comprehensive state-of-the-art guidance for managing IAQ in commercial buildings. I-BEAM contains text, animation/visual, and interactive/calculation components that can be used to perform a number of diverse tasks.

Energy Cost and IAQ Performance of Ventilation Systems and Controls Modeling Study

In 1999, EPA completed an extensive modeling study to assess the compatibilities and trade-offs between energy, indoor air quality, and thermal comfort objectives for HVAC systems, and to help formulate strategies to simultaneously achieve superior performance on each objective. Variations of Constant Volume (CV) and Variable Air Volume (VAV) HVAC systems were modeled in three different climates-hot and humid (Miami), temperate (Washington D.C.), and cold (Minneapolis). Buildings included several variations of an office building, plus a school, and an auditorium.

Building Air Quality Action Plan

The Building Air Quality Action Plan (BAQ Action Plan) meets the needs of building owners and managers who want an easy-to-understand path for taking their building from current conditions and practices to the successful institutionalization of good IAQ management practices. It emphasizes changing how you operate and maintain your building, not increasing the amount of work or cost of maintaining your building. The BAQ Action Plan follows 8 logical steps and includes a 100-item Checklist that is designed to help verify implementation of the Action Plan. EPA Document Number 402-K-98-001.

In order to use the Building Air Quality Action Plan effectively, one must have a thorough understanding of the concepts and practice of managing indoor air quality, an understanding that can be gained from a thorough reading of Building Air Quality: A Guide for Building Owners and Facility Managers (BAQ). In addition, there is extensive internal referencing of this BAQ Action Plan to the original BAQ guide, making it helpful and easy to use both documents together.

Building Air Quality: A Guide for Building Owners and Facility Managers

The Building Air Quality, developed by the EPA and the National Institute for Occupational Safety and Health, provides practical suggestions on preventing, identifying, and resolving indoor air quality (IAQ) problems in public and commercial buildings. This guidance provides information on factors affecting indoor air quality; describes how to develop an IAQ profile of building conditions and create an IAQ management plan; describes investigative strategies to identify causes of IAQ problems; and provides criteria for assessing alternative mitigation strategies, determining whether a problem has been resolved, and deciding whether to consult outside technical specialists. Other topics included in the guide are key problem causing factors; air quality sampling; heating, ventilation, and air conditioning systems; moisture problems; and additional sources of information. The order form is available from IAQ INFO via EPA Document Reference Number **402-F-91-102**, December 1991.

The text of Building Air Quality is available here as a series of PDF files which you can download and view or print. You can go to the table of contents and select just the form or section that you need to download and view/print, or you can download the entire PDF version of the guide as a ZIPPED file to view/print. You will need the Adobe Acrobat Reader to view these files and you will need a utility to unzip the file, both are provided here. [Go to the Building Air Quality Table of Contents](#) and select the specific PDF file that you require. [Download the Adobe Acrobat Reader](#).

To obtain the loose leaf-format version of the Building Air Quality, complete with appendices, an index, and a full set of useful forms, GPO Stock # 055-000-00602-4, for \$28, contact the: Superintendent of Documents, U.S. Government Printing Office (GPO), P.O. Box 371954, Pittsburgh, PA 15250-7954, or call (202) 512-1800, fax (202) 512-2250.

Information on **how to order** the "Building Air Quality Training Kit" with instructor materials and handouts to conduct a 4-hour companion course (\$150.00) to *Building Air Quality: A Guide for Building Owners and Facility Managers*, listed above is available through the [IAQ INFO Clearinghouse](#).

Information on **how to order** the "Orientation to Indoor Air Quality" instructor and student materials used to conduct a 2 1/2 day training course (\$180.00) is available through the [IAQ INFO Clearinghouse](#).

An Office Building Occupant's Guide to Indoor Air Quality

This booklet is intended to help people who work in office buildings learn about the factors that contribute to indoor air quality and comfort problems and the roles of building managers and occupants in maintaining a good indoor environment. Because good indoor air quality depends on the actions of everyone in the building, a partnership between building management and occupants is the best way to maintain a healthy and productive work space. EPA 402-K-97-003, October 1997.

Targeting Indoor Air Pollution: EPA's Approach and Progress

Summarizes the relationship between indoor air quality and health, EPA's program and approach for dealing with indoor air pollution and

in the program and approach for dealing with indoor air pollution, and authorizing legislation. This leaflet describes publications, training programs, and research activities. U.S. EPA, EPA Document Number 400-R-92-012, March 1993.

Fact Sheet: Ventilation and Air Quality in Offices

Discusses the role of mechanical heating, ventilation, and air conditioning systems in maintaining indoor air quality of commercial buildings such as offices, stores, and hotels. Topics include health problems associated with poor ventilation, ways of controlling pollution, ventilation standards and building codes, and various ventilation system problems and solutions. Provides measures for resolving air quality problems and sources for additional information. U.S. EPA, EPA Document Number 402-F-94-003, Revised July 1990.

Fact Sheet: Sick Building Syndrome

Explains the terms "sick building syndrome" (SBS) and "building related illness" (BRI). Discusses causes of sick building syndrome, describes building investigation procedures, and provides general solutions for resolving the syndrome. Indoor Air Facts No. 4 (revised), U.S. EPA, EPA Document Number 402-F-94-004, April 1991.



MOLDS

Mold Remediation in Schools and Commercial Buildings

This document, also available as a series of HTML Files and in Adobe Acrobat PDF format (5MB file), presents guidelines for the remediation/cleanup of mold and moisture problems in schools and commercial buildings; these guidelines include measures designed to protect the health of building occupants and remediators. It has been designed primarily for building managers, custodians, and others who are responsible for commercial building and school maintenance. It should serve as a reference for potential mold and moisture remediators. EPA 402-K-01-001, March 2001. Now available at IAQ INFO and EPA's NSCEP.



RADON

A Citizen's Guide to Radon (third edition) *The guide to protecting yourself and your family from radon.*

This booklet was developed by the EPA, The U.S. Department of Health and Human Services and the U.S. Public Health Service. This is the complete guide to taking action to lower the radon level in your home. It offers strategies for testing and discussions of what steps to take after you have tested, discussions of the risk of radon and radon myths. EPA Document Number 402-K-92-001, September 1992.

Consumer's Guide to Radon Reduction *How to Reduce Radon Levels in Your Home...*

This booklet is for people who have tested their home for radon and confirmed that they have elevated radon levels. EPA Document Number **402-K-92-003**.

El Radón Guía para su protección y la de su familia

Este panfleto, la versión en español de la popular "Guía de Radón para Ciudadanos," fué desarrollada por la **Coalición Nacional de Organizaciones Hispanas de Servicios (COSSMHO)** para la Agencia de los Estados Unidos para la Protección Ambiental. Llame a su **Contacto Estatal de Radón** para obtener una copia de esta guía (Todas las Oficinas Estatales de Radón están disponibles para contestar sus llamadas y preguntas en Inglés). Documento de la Agencia de los Estados Unidos para la Protección Ambiental Número **402-K-93-005**, septiembre del 1993.

Home Buyer's and Seller's Guide to Radon

This recently revised guide is intended for anyone who is buying or selling a home, real estate and relocation professionals, home inspectors and others. Go to this hyperlink **Section 8.c.1.** of the Guide for information on obtaining single or multiple copies of the Guide. If you're interested in printing the Guide, call (202) 564-9427 for more information about obtaining a free CD-Rom (Adobe PageMaker 6.5 for Windows version of the Guide). An Adobe Acrobat pdf version of the Guide is also available here [hmbuygud.pdf](#) (1.789K file size). EPA Document Number 402-K-00-008, July 2000.

Building Radon Out: A Step-by-Step Guide on How to Build Radon-Resistant Homes

This 81-page, fully illustrated guide contains all the info you need in one place to educate home builders about radon-resistant new construction (RRNC), including: Basic questions and detailed answers about radon and RRNC; Specific planning steps before installing a system; Detailed installation instructions with helpful illustrations; Tips and tricks when installing a system, Marketing know-how when dealing with homebuyers; and, Architectural drawings. This document is available here as a 7.9 MB Adobe Acrobat PDF file ([buildradonout.pdf](#)) - EPA Document Number 402-K-01-002, April 2001.

Reducing Radon Risks (the "Hold Your Breath" brochure)

EPA Document Number **520/1-89-027A**, September 1992.

Radon - A Physician's Guide: *The Health Threat With A Simple Solution*

This booklet on radon has been developed for physicians by the EPA in consultation with the **American Medical Association (AMA)**. Its purpose is to enlist physicians in the national effort to inform the American public about the serious health risk posed by indoor radon gas. EPA Document Number **402-K-93-008**, September 1993.

A Radon Guide for Tenants

This guide, created by the **Environmental Law Institute (ELI)** with

EPA's review, is for people who rent their apartments or houses. The guide explains what radon is, and how to find out if there is a radon problem in your home. The guide also talks about what you can do if there are high radon levels in your home. EPA Document Number 402-K-98-004.

Radon In Schools (Second Edition)

It is important that students, teachers and parents be aware that a potential radon problem could exist in their school. This brochure was developed in cooperation with the **National Education Association, The American Lung Association, and the Parents and Teachers Association**. EPA Document Number 402-F-94-009, October 1994.

Radon Measurement In Schools (Revised Edition)

This report has been prepared to provide school administrators and facilities managers with instructions on how to test for the presence of radon. The findings from EPA's comprehensive studies of radon measurements in schools have been incorporated into these recommendations. This report supersedes Radon Measurements in Schools - An Interim Report (EPA 520/1-89-010). However, it does not invalidate tests conducted or tests in the process of being conducted under the interim report. EPA Document Number 402-R-92-014, July 1993.

Reducing Radon In Schools: A Team Approach

This document will assist you in determining the best way to reduce elevated radon levels found in a school. It is designed to guide you through the process of confirming a radon problem, selecting the best mitigation strategy, and directing the efforts of a multidisciplinary team assembled to address elevated radon levels in a way that will contribute to the improvement of the overall indoor air quality of the school. EPA Document Number 402-R-94-008, April 1994.



RADON RESISTANT NEW CONSTRUCTION

Model Standards and Techniques for Control of Radon In New Residential Buildings

This document is intended to serve as a model for use by the Model Code Organizations, States and other jurisdictions as they develop and adopt building codes, appendices to codes, or standards specifically applicable to their unique local or regional radon control requirements. EPA Document Number 402-R-94-009, March 1994.

Buying a New Home: How to Protect Your Family From Radon

This introductory brochure provides basic information on radon-resistant construction in new homes and directs the reader to more detailed information. EPA Document Number 402-F-98-008, April 1998.

Building a New Home: Have You Considered Radon?

This brochure is designed for consumers who are purchasing newly constructed homes and are curious about radon-resistant features, builders who construct homes with radon-resistant features, and real estate professionals who are selling homes which have radon-resistant features. It can be used as a marketing tool for the home building industry. EPA Document Number **402F-98-001**, September 1998.

Passive Radon Control System for New Construction

These architectural drawings of: 1) passive radon control system; 2) crawlspace radon control system, and 3) additional fan for active system for one and two-family dwellings. These drawings are intended for use by architects, home builders, designers, radon mitigators and others interested in the installation of passive radon control systems in one and two-family dwellings. You can get a [522K zipped file](#) for use with CAD programs). Or you can download a [PDF \(985K\) version](#) of the drawings.



RADON TECHNICAL DOCUMENTS

Radon Mitigation Standards

The purpose of the Radon Mitigation Standards is to provide radon mitigation contractors with uniform standards that will ensure quality and effectiveness in the design, installation, and evaluation of radon mitigation systems in detached and attached residential buildings three stories or less in height. These standards are intended to serve as a model set of requirements that can be adopted or modified by state and local jurisdictions to fulfill objectives of their specific radon contractor certification or licensure programs. EPA Document Number **402-R-93-078**, October 1993 (Revised April 1994)

Indoor Radon and Radon Decay Product Measurement Device Protocols

The objective of this document is to provide information, recommendations, and technological guidance for anyone providing measurement services using 15 radon and radon decay product measurement methods. These protocols provide method-specific technological guidance that can be used as the basis for standard operating procedures. EPA Document Number **402-R-92-004**, July 1992.

Protocols for Radon and Radon Decay Product Measurements in Homes

This document presents the U.S. EPA's technical guidance for measuring radon concentrations in residences. It contains protocols for measuring radon for the purpose of deciding on the need for remedial action, as presented in the 1992 *Citizen's Guide to Radon*, and in the *Home Buyer's and Seller's Guide to Radon*. EPA Document Number **402-R-93-003**, June 1993.

Radon Prevention in the Design and Construction of Schools and Other Large Buildings

It is typically easier and much less expensive to design and construct a

new building with radon-resistant and/or easy-to-mitigate features, than to add these features after the building is completed and occupied. Chapter 1 of this manual is a general introduction for those who need background information on the indoor radon problem and the techniques currently being studied and applied for radon reduction. Chapter 2 of this manual provides comprehensive information, instructions, and guidelines about the topics and construction techniques discussed in Chapter 1.

You can obtain a copy by contacting the Center for Environmental Research Information at (513) 569-7562 or fax your request to (513) 569-7566. EPA Document Number 625-R-92-016, June 1994.

Technical Support Document for the 1992 Citizen's Guide to Radon

This document presents the wide range of technical analyses, radon risk communication research, legislative directives, and other information that the U.S. EPA used to shape the policies that are set forth in the 1992 "A Citizen's Guide to Radon." The document summarizes extensive technical analyses of the data that have been gathered over the past years. EPA Document Number 400-R-92-011, May 1992.

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IAQ in SCHOOLS

Indoor Air Quality Tools for Schools Action Kit

(all of the Kit, except for the IAQ Problem Solving Wheel, is available here as HTML documents via the links below)

This easy-to-use kit shows schools how to carry out a practical plan of action that will maintain or improve indoor air quality at little or no cost using common-sense activities and in-house staff. The kit was developed by EPA, and is co-sponsored by the National Education Association, National PTA, Council for American Private Education, Association for School Business Officials, American Federation of Teachers, and the American Lung Association. [This hyperlink will take you to the schools web site where there is information on how to order the kit.](#)

Special Symposium Supplement of The IAQ Tools for Schools Bulletin

The latest version of the *Indoor Air Quality Tools for Schools* Bulletin is a [special supplement](#) (552KB PDF file) focusing on the 2000 *Indoor Air Quality Tools for Schools* National Symposium. The Bulletin provides information on the Symposium Informational Breakout Sessions and the launch of the IAQ Tools for Schools Excellence Award Program and the 2000 Award Winners. EPA 402-F-01-002, March 2001. [NOTE: You will need Adobe Acrobat Reader version 4.0 or higher to read this file.]

Indoor Air Quality and Student Performance EPA 402-F-00-009, August 2000

Poor indoor air quality (IAQ) can cause or exacerbate illnesses in children and adults, which in turn leads to absence from school. Poor IAQ can cause health symptoms that decrease performance while at school. Recent data suggest that poor IAQ can reduce a person's ability to perform specific mental tasks requiring concentration, calculation, or

to perform specific mental tasks requiring concentration, calculation, or memory. Poor indoor air, containing a variety of particles and gaseous contaminants, most often occurs when schools fail to follow simple practices that create and maintain a healthy indoor environment. EPA has developed a three-page fact sheet that presents more information about the problem of poor IAQ, its causes, health consequences, and solutions.

Indoor Air Quality Tools for Schools Case Studies EPA 402-F-00-010A, B & C, August 2000

Schools and school districts across the nation are reaping the benefits of improved indoor air quality by successfully implementing the *IAQ Tools for Schools* Kit and program. EPA has developed case studies describing the experiences and processes associated with implementing good Indoor Air Quality strategies and practices. Each school profiled has overcome different barriers -- financial, legal, managerial, health-related, or community-related -- through teamwork and a strong commitment to providing a healthy learning environment for students and staff. Help others learn from your experiences! If you have an IAQ story to share, please contact Michele Guarneiri by e-mail at guarneiri.michele@epa.gov.

CD-ROM Based *IAQ Tools for Schools* Kit (Second Edition, December 2000) EPA 402-C-00-002, August 2000

The CD includes all written materials in the Kit, such as the IAQ Backgrounder, IAQ Coordinator's Guide, Checklists (including the new "Walkthrough" checklist) and other forms in both Adobe PDF and MS Windows Pagemaker 6.5+ format. To order, call 1-800-438-4318, ask for EPA document number 402-C-00-002, August 2000.

CD-Rom Based *IAQ Tools for Schools* Training Modules EPA 402-C-99-002

EPA is currently distributing a CD-ROM (EPA Document # EPA402-C-99-002) containing *IAQ Tools for Schools Training Modules*. These Modules were designed to assist in the training of school district personnel in the use of EPA's *IAQ Tools for Schools Action Kit*. The modules on the CD consist of three main components in a Microsoft Powerpoint slide show format: a 40-minute Short Presentation; Module 1; and, Module 2. This web site has PDF versions of the slide shows, the PPT-format of the short presentation and detailed information on what is on the CD and hints on using the CD.

IAQ Tools for Schools - Managing Asthma in the School Environment EPA 402-K-00-003, May 2000

Asthma has reached epidemic proportions in the United States affecting about 15 million people of all ages and races, particularly children. Nearly one in 13 school-aged children has asthma, and the percentage of children with asthma is rising more rapidly in preschool-aged children than in any other age group. Asthma is the leading cause of school absenteeism due to a chronic illness, accounting for over 10 million missed school days per year. Asthma also accounts for many nights of interrupted sleep, limitation of activity, and disruption of family and caregiver routines. Asthma symptoms which are not severe enough to require a visit to an emergency room or to a physician can still be serious enough to prevent a child with asthma from living a fully active life.

IAQ Tools for Schools - Actions to Improve IAQ EPA 402-F-99-008, September 1999

EPA's Indoor Environments Division has designed a new tool to promote *IAQ Tools for Schools*. The content of this brochure will assist you in marketing the *IAQ Tools for Schools* Kit to K-12 schools and other interested stakeholders. A unique feature of this new tool is that it provides newly-created information on *IAQ Tools for Schools* with four insert cards with guidance and action items for facility managers, teachers, administrators, and health professionals. Also provided are newly-created tips on community sponsorship of IAQ programs in schools.

The IAQ Tools for Schools Bulletin

The IAQ Tools for Schools Bulletin (presented here as a downloadable Adobe Acrobat PDF file is a new resource for schools who are using, or plan to use the IAQ Tools for Schools Action kit. It provides examples of nation-wide success stories, training updates, and useful contact information. Article submissions are welcome. Contact Michele Guarneiri for information and submissions.

Special IAQ Tools for Schools Symposium Supplement, EPA 402-F-01-002, March 2001 (553K PDF file)

Radon in Schools Brochure (2nd Edition), October 1994 (402-F-94-009)

Abstract and ordering information for "**Reducing Radon in Schools: A Team Approach**", April 1994 (402-R-94-008)

Abstract and ordering information for "**Radon Measurement in Schools (Revised Edition)**", July 1993 (402-R-92-014)

Abstract and ordering information for "**Radon Prevention in the Design and Construction of Schools and Other Large Buildings**," June 1994 (625-R-92-016)

Abstract and ordering information for "**Radon Measurement in Schools**" (Self-Paced Training Workbook), 1994(402-B-94-001)

Description and ordering information for **The U.S. General Accounting Office** reports to Congressional requesters on School Facilities.

The EPA also has available, an "**Introduction to Indoor Air Quality: A Self-Paced Learning Module**," from the National Environmental Health Association, 720 Colorado Boulevard, #970 South Tower, Denver, Colorado 80222. Telephone: (303) 756-9090. The Learning Module may be obtained for \$47.00 by non-members and \$40.00 by members.

Pesticides: Uses, Effects and Alternatives to Pesticides in Schools, U.S. General Accounting Office, Report to the Ranking Minority Member, Committee on Governmental Affairs, Resources, Community, and Economic Development Division, U.S. Senate, November 29, 1999, GAO/RCED-00-17.

Orders by mail: U.S. General Accounting Office; P.O. Box 37050; Washington, DC 20013, or Visit: Room 110, 700 4th St., N.W.; U.S. General Accounting Office, Washington, DC, or call (202) 512-6000 or

by fax (202) 512-6061, or TDD (202) 512-2537. You can also visit their web site at: <http://www.gao.gov> or send e-mail to info@www.gao.gov.



OTHER INDOOR AIR MATERIALS

Indoor Air Pollution: An Introduction for Health Professionals

Assists health professionals (especially the primary care physician) in diagnosis of patient symptoms that could be related to an indoor air pollution problem. Addresses the health problems that may be caused by contaminants encountered daily in the home and office. Organized according to pollutant or pollutant groups such as environmental tobacco smoke, VOCs, biological pollutants, and sick building syndrome, this booklet lists key signs and symptoms from exposure to these pollutants, provides a diagnostic checklist and quick reference summary, and includes suggestions for remedial action. Also includes references for information contained in each section. This booklet was developed by the American Lung Association, the American Medical Association, the U.S. Consumer Product Safety Commission, and the EPA. EPA Document Reference Number **402-R-94-007**, 1994.

Current Federal Indoor Air Quality Activities

Contains a compendium of research, policy, and program development activities concerning indoor air quality being conducted by Federal agencies. Developed under the auspices of the Interagency Committee on Indoor Air Quality (CIAQ), this booklet identifies the major indoor air quality activities, describes each activity, and provides the name of the lead agency/office and a point of contact. Contributing agencies include the EPA, the Department of Energy, the Department of Health and Human Services, and the U.S. Consumer Product Safety Commission. Information is presented in tabular format and includes a list of publications available to the general public. U.S. EPA, EPA Document Number **402-K-99-001**, March 1999.

Project Summary: The Total Exposure Assessment Methodology (TEAM) Study

Summarizes a study of exposure to toxic and carcinogenic chemicals (VOCs) in the air and drinking water by 600 residents of seven U.S. cities. Study concluded that indoor air in the home and at work far outweighs outdoor air as a route of exposure to toxic chemicals. Other major findings: Study demonstrated the utility of breath sampling to estimate levels of toxic chemicals in the body due to normal daily exposure; also demonstrated utility of TEAM approach for estimating exposure of entire urban populations and gaining an understanding of the sources of exposure. Summary includes a listing of TEAM study published articles and reports. U.S. EPA, Office of Acid Deposition, Environmental Monitoring and Quality Assurance, Office of Research and Development, EPA Document Number **600/S6-87/002**, September 1987.

Project Summary: Indoor Air Quality in Public Buildings: Volume I

Summarizes a study of VOCs present in new and existing buildings.

The researchers identified 500 VOCs in indoor air in four buildings (a school, two homes for the elderly, and an office building) and determined that concentrations of certain target VOCs are elevated in buildings due to emissions from certain building materials (measurements were taken from 16 such materials). Concentrations of compounds such as xylene and decane were elevated in the new building at completion of construction but fell off markedly within six months. Study was limited in scope and duration, made no extrapolations or estimates of VOC distribution frequency in public buildings, and recommended further study involving different types of buildings and many more types of building materials. A copy of the study report may be obtained from the National Technical Information Service in Springfield, Virginia. U.S. EPA, EPA Document Number 600/S6-88/009a, September 1988.

Project Summary: Indoor Air Quality in Public Buildings: Volume II

Summarizes results of companion study to that reported by Volume I. Six buildings were sampled for VOCs (a hospital, two homes for the elderly, two office buildings, and an institute for governmental studies). The new buildings had high concentrations of aromatic and aliphatic hydrocarbons immediately after completion but concentrations declined by an order of magnitude within several months. Building materials emitting these chemicals at the highest rates were surface coatings such as adhesives, caulking, and paints; wall and floor coverings such as molding, linoleum tile, and carpeting; and miscellaneous other materials such as vinyl telephone cables. Researchers surmised that renovation or refurbishment of buildings would also result in temporarily higher concentrations of these chemicals. A copy of the study report may be obtained from the National Technical Information Service in Springfield, Virginia. U.S. EPA, EPA Document Number 600/S6-88/009b, September 1988.

Project Summary: Compendium of Methods for the Determination of Air Pollutants In Indoor Air

Summarizes research project which developed a Compendium of Methods for the Determination of Air Pollutants in Indoor Air. The Compendium provides regional, state, and local environmental regulatory agencies with standardized, step-by-step sampling and laboratory analysis procedures for the determination of selected pollutants in indoor air. A core set of ten chapters, with each chapter containing one or more methods, covers VOCs, carbon monoxide and carbon dioxide, air exchange rate, benzo(a)pyrene and other polynuclear aromatic hydrocarbons, and several other contaminants. A copy of the full document may be obtained from the National Technical Information Service in Springfield, Virginia, U.S. EPA, EPA Document Number 600/S4-90-010, May 1990.

Introduction to Indoor Air Quality: A Self-Paced Learning Module

The *Indoor Air Quality Learning Module* and its companion document, the *Indoor Air Quality Reference Manual*, provide an introduction to indoor air quality for environmental health professionals. Primary focus is on residential indoor air quality. Documents cover those aspects of indoor air quality important for establishing an indoor air quality program by a state or local government agency. Developed under a cooperative arrangement between the National Environmental Health Association, the Bureau of Health Professions of the U.S. Public Health Service, and the Indoor Air Division of the EPA. EPA Document Reference Number

THE INDOOR AIR DIVISION OF THE EPA. EPA DOCUMENT REFERENCE NUMBER
400-39-1002, July 1991.

Introduction to Indoor Air Quality: A Reference Manual

The *Indoor Air Quality Reference Manual* is the companion document to the *Indoor Air Quality Learning Module*. The *Reference Manual* provides an opportunity for continuing education plus useful reference material on selected indoor air quality topics. Divided into eight sections corresponding to the first eight lessons of the *Learning Module*, the *Reference Manual* also contains information and exhibits which can be used in field investigations (e.g., problem diagnosis, sample measurement, data collection forms, and a listing of public health and occupational standards). Developed under a cooperative arrangement between the National Environmental Health Association, the Bureau of Health Professions of the U.S. Public Health Service, and the Indoor Air Division of the EPA, EPA Document Number **4003-91-003**, July 1991.

This set of documents may be obtained for \$47 by nonmembers and \$40 by members (plus \$7.50 for shipping & handling). Contact the National Environmental Health Association, 720 Colorado Boulevard, #970 South Tower, Denver, CO 80222, Tel. (303) 756-9090.



HOW TO ORDER

These indoor air quality publications are also available through the IAQ INFO Clearinghouse.

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