INDOOR AIR POLLUTION

The Virginia Chapter of the American Lung Association has developed a program called "Breathe Easy® Office," which is dedicated to reducing indoor air pollution by using low-cost, sustainable building products and techniques. The chapter's Richmond headquarters is the first facility to be constructed using the ALA's Breathe Easy program.

For more information, visit www.lungusa.org/breatheasyoffice

A SHORT BREADTH OF KNOWLEDGE CAN PROLONG YOUR LIFE

Many people understand the health consequences of outdoor air pollution, but they may not be aware of the toxins that they breathe indoors. The U.S. Environmental Protection Agency (EPA) estimates that human exposure to indoor air pollutants can be 25 to 100 times higher than outdoor levels and ranks indoor air pollution among the top five environmental risks to public health. Although indoor pollution can come from outdoor sources (carbon monoxide) and biological agents (mold, pollen, and bacteria), most indoor pollutants are linked to chemical contaminants known as volatile organic compounds (VOCs) that originate from inside buildings.

VOCS AND THEIR SOURCES

VOCs are released in a gaseous form at room temperature and are found in most materials and products used in the construction, finishing, and maintenance of interior office spaces. These sources include paints, adhesives, sealants, caulks, upholstery, carpeting, composite wood products, vinyl floors, furniture finishing products, pesticides, and cleaning supplies.

There are an estimated 300 different VOCs typically detected in the indoor air of non-residential buildings. Since most people spend a majority of their time indoors, it is no wonder that exposure to these toxins can cause short-term and long-term health effects, resulting in increased concern about "sick building syndrome" (SBS).

WHAT IS SICK BUILDING SYNDROME?

SBS is a condition in which building occupants experience symptoms that do not fit the pattern of any particular illness. Research has shown that VOCs play a large role in many SBS complaints, particularly in new or newly renovated office buildings.

Often this problem is compounded by even higher concentrations of VOC emissions due to the construction of modern, tightly sealed buildings (in order to reduce energy costs), and newer ventilation systems, which recycle a large amount of inside air.

Health effects. Short-term symptoms of SBS include eye, nose, and throat irritation; dry mucous membranes and skin; mental fatigue and headaches; respiratory infections and cough; sensitivity to odors; and nausea. Most occupants feel relief after leaving the "sick" building. Long-term exposure to high levels of some indoor pollutants may damage the liver, kidneys, and central nervous system.

Economic consequences. An EPA report to Congress on indoor air quality concluded that the estimated costs of indoor air pollution were tens of billions of dollars per year, including direct medical expenses for treatment of people affected by poor indoor air quality; lost productivity from absence due to illness; decreased efficiency on the job; and materials and equipment damages due to exposure to indoor air pollutants.

Legal ramifications. Legal precedents are already being established across America concerning SBS lawsuits. Building occupants are winning large damage awards as a result of health issues associated with VOC emissions from building materials. This is prompting many insurance companies to review current and future policies as they relate to the design, construction, and operation methods of their clients.

POLLUTION PREVENTION USING GREEN, LOW-VOC PRODUCTS

The most efficient solution to many indoor air quality problems is to eliminate the source of the contaminants. Use of low-VOC-emitting construction and maintenance materials is the most effective means of minimizing occupant exposure to chemicals. It also promotes healthy building practices for both design and maintenance procedures. The following categories represent some of the more polluting materials and include information concerning nonprofit organizations that both develop green product standards and test available brands for environmental performance:

- ❑ Carpet and adhesives—The Carpet and Rug Institute (CRI) initiated a voluntary VOC-testing and labeling program called "Green Label" as a result of EPA's Carpet Policy Dialogue. Builders can find Green Label products at www.carpet-rug.com.
- ❑ Cleaning products—Green Seal (www.greenseal.org) provides a "Green Seal of Approval" to cleaning products that pass a VOC-emissions testing procedure. Two publications, *Choose Green Report for General Purpose Cleaners* and *Choose Green Report for Industrial/Institutional Cleaners* identifies the products that meet the criteria.
- ❑ Architectural paints—Green Seal, in collaboration with the U.S. Army's Aberdeen Proving Ground (APG), developed an environmental and performance standard by reviewing 2,200 paints in use at APG. The 71 paints that passed the VOC testing procedure can be found in Green Seal's *Choose Green Report for Architectural Paints.*

—By Michael Kornell, *president of Kornell Consulting Inc., which offers research and database development services of green product alternatives for the construction industry and municipal authorities. Kornell is also president of an environmentally safe products company called Eco-wares.*

FOR MORE INFORMATION

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