

“SICK” BUILDINGS CAUSES AND SYMPTOMS

REAL COST OF KEEPING BUILDINGS HEALTHY

The Causes of “Sick” Buildings

The professional cleaners become involved with health issues, we will come across the term “sick buildings”. Even though the press has sensationalized the term, it does evoke an image of the situation that occurs in an indoor environment when occupants complain of health and comfort problems related to being in it.

Professional cleaners should never set out to search for sick buildings. In fact, there are no “sick buildings,” only mismanaged or misunderstood ones. Buildings do not get sick, people do. It’s bad business to use a sick building scare tactic. It makes much more sense to look for mismanaged buildings that can be reconditioned through sound cleaning procedures. Many “experts” and the “media” focus on more extravagant and controversial theories of the cause for “sick buildings” and fail to mention poor maintenance as a possible cause even when it is obvious. The need for a clean environment may not be exciting, but it is essential for good health.

The World Health Organization has estimated that up to 30 percent of new and remodeled buildings may have conditions that generate complaints. In fact, almost every building may have indoor environmental problems at some time. Often, the problems result from a building’s being used, operated, and maintained in ways unforeseen by its designers. Initial poor building design or faulty furnishings may also cause problems.

A healthy environment exists when things that cause harm are managed, kept in their proper place, and not allowed to concentrate and cause harm. A healthy built environment is properly managed and operated so that it does not harm the inhabitants but actually contributes to their physical, mental, and social well-being.

It follows that the primary objective of cleaning is to separate humans from hazards. We achieve this objective by putting things in their proper places and maintaining them at a proper level. When we do this, contaminants do not increase to levels that can harm humans. Such cleaning provides a secondary benefit: It protects furnishings and other valuables.

The public’s concern about building hygiene is growing because of the any health problems that have been reported in thousands of buildings. The media have highlighted such problems as formaldehyde, fungus, and asbestos in buildings. They have also described the consequences – day-care centre illness, office illness, and hypersensitivity to name only a few. Studies and preliminary assessment clearly indicate that the vast majority of the population is to some degree at significant risk to any one of dozens of contaminants.

Five Symptoms of People in Sick Buildings

Five general symptoms signal that a person is spending time in an unsafe building: sensory irritation in the eyes, nose and throat, skin irritation, neurotoxic symptoms, hypersensitivity, and odor and taste symptoms. The severity of these symptoms can range from uncomfortable to disabling. In a few cases, irreversible damage to body organs and even death are possible. Commonly, people simply suffer mild to moderately troublesome bouts with these complaints. The following paragraphs describe thee symptoms in more detail.

Sensory irritation: in the eyes nose and throat manifests itself as pain, dryness, stinging, hoarseness, and voice problems.

Skin irritation: manifests itself as pain, reddening, smarting or itching, and dry skin.

Neurotoxic symptoms: are associated with headache, sluggishness, mental and physical fatigue, memory loss, difficulty concentrating dizziness, intoxication, and vomiting.

Hypersensitivity: reactions include runny nose, teary eyes, asthma-like response and hyperventilating sounds from the respiratory track.

Odor and taste symptoms: include changed sensitivity in smelling and tasting as well as impressions of unpleasant odors and tastes.

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Five Common Causes of Sick Buildings

Indoor environmental problems have five common causes, and more than one may be active at any time: an inadequately cleaned environment, poor ventilation, pollutants emitted from sources and activities inside the building, contamination from outside sources, and biological contamination due to a lack of moisture control. These causes can intensify the stress that occupants suffer from inadequate temperatures, humidity, lighting or excess noise. There are other health complaints that cleaning cannot directly affect: occupant density, job dissatisfaction and stress, and lack of personal privacy and control over the environment.

Cleaning is the key to a healthy environment. The inadequately cleaned environment is the consequence of inattention to the different emissions and by-products of activities indoors and the need for constant ordering. Poor ventilation often is the result of dirty air filters that need periodic cleaning or replacement. Emissions from cooking or tobacco products always need to be removed. Left alone, they build up, damaging materials, causing odors, and in some cases increasing cancer risks to humans. Particles from the outside are constantly being tracked or blown inside. They need to be removed through cleaning.

Before the 1974 energy crisis, most buildings were designed to provide maximum comfort to inhabitants. For example, work areas were larger. Heating, ventilating, and air conditioning systems were designed to provide as much as 15 cfm of outside air for each building occupant. Since 1974, buildings have been designed to save energy. The sizes of space for heating and cooling have been reduced, and outdoor air ventilation lowered to 5 cfm. Moreover, many ventilation systems do not effectively distribute air to people in buildings. Inadequate air diffusion combined with reduced ventilation causes pollution levels to build up. Reduced emphasis on cleaning only compounds the problem. As pollutant concentrations rise, so do health complaints.

Many indoor pollutants come from sources inside the building. Humans emit many infectious agents, particles, fluids and gases. Adhesives, vinyl wall coverings, rubber molding, manufactured wood products, copying machines, pesticides, and cleaning agents can emit volatile organic compounds (VOCs), including formaldehyde and benzene. Some VOCs can cause health effects at high concentrations, and some are known carcinogens. Tobacco smoke is a common source of indoor air pollution. It contributes to harmful levels of VOCs such as benzene. It is the single leading source of harmful concentrations or respirable particulate matter found indoors.

Sources outside the building also contaminate indoor air. For example, pollutants from motor vehicles, plumbing vents, and building exhausts enter buildings through windows, doors, and improperly located outside air intakes. Combustion particles and combustion products such as carbon monoxide and soot can enter a building from attached or underground garages. Contaminants in soil or on hard surfaces outside are tracked, blown, or drawn into buildings. They can rise to comparable outside concentrations in house dusts and in carpets and other fabrics.

A major cause of illness indoors is biological contamination. It is – or is derived – from living organisms such as bacteria, fungi, viruses, and mites, and from other biological material such as insect parts. All of these can originate both inside and outside of the built environment.

Biological contamination occurs most often when moisture and food sources for living organisms are not properly managed. Ironically, mechanical ventilation systems often serve as homes for these contaminants. Biological pollutants such as fungi and bacteria breed in water that has been allowed to accumulate on hard surfaces in humidifiers and cooling coil condensate pans. They also breed where water has collected on or under cellulose materials such as ceiling tiles, wallpaper, carpeting, insulation, and internally lined ductwork. The most publicized of these biopollutants is Legionella. It causes Legionnaires' disease, which is fatal in about 20 percent of all cases. Humans can be sensitized to several such different fungi such as aspergillums and penicillium. They can experience a range of health effects such as skin and eye irritation, labored breathing, and fatigue. The wastes of some living organisms are known to be carcinogenic.

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The cleaning professional has a key role. We manage the indoor environment so that the any contaminants that cause sickness are removed from contact with humans. When contaminants are removed or minimized through cleaning, human exposures and risks are reduced. Cleaning is always the critical ingredient in maintaining a healthy building.