



Why air quality is important to your workplace

By Nancy Keller
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Studies of human exposure to air pollutants have indicated that indoor levels of pollutants may be 2-5 times, and occasionally more than 100 times, higher than outdoor levels. These levels of indoor air pollutants may be of particular concern because most people spend about 90 per cent of their time indoors.

The increased use of chemical pollutants in consumer and commercial products, the tendency toward tighter building envelopes and reduced ventilation to save energy, and pressures to defer maintenance and other building services to reduce costs have fostered indoor air quality problems in many buildings.

Occupant complaints of odors, stale and stuffy air, and symptoms of illness or discomfort may cause undesirable conflicts between occupants or tenants and building managers. Lawsuits sometimes follow.

Indoor air quality is a major concern to businesses, building managers, tenants and employees because it can impact the health, comfort, well being, and productivity of building occupants.

The following have been cited causes of or contributing factors to poor indoor air quality:

1. Inadequate ventilation: Proper operation and maintenance of all air handling systems assist in ensuring adequate air quality. Supplying a sufficient amount of fresh air through the heating, ventilation, and air conditioning (HVAC) system at an appropriate temperature, humidity, and velocity is the most common recommendation to alleviate IAQ complaints
2. Chemical contaminants from indoor sources: Most indoor air pollution comes from sources inside the building. For example, adhesives, carpeting, upholstery, manufactured wood products, copy machines, pesticides, and cleaning agents may emit volatile organic compounds (VOCs), including formaldehyde. Combustion products such as carbon monoxide, nitrogen dioxide, as well as respirable particles, can come from unvented kerosene and gas space heaters, woodstoves, fireplaces and gas stoves.
3. Chemical contaminants from outdoor sources: The outdoor air that enters a building can be a source of indoor air pollution. For example, pollutants from motor vehicle exhausts, plumbing vents, and building exhausts (e.g., bathrooms and kitchens) can enter the building through poorly located air intake vents, windows, nearby garages and other openings

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4. Biological contaminants: Bacteria, molds, pollen, and viruses are types of biological contaminants. These contaminants may breed in stagnant water that has accumulated in ducts, humidifiers and drain pans, or where water has collected on ceiling tiles, carpeting, or insulation. Sometimes insects or bird droppings can be a source of biological contaminants. The term "sick building syndrome" (SBS) is used to describe situations in which building occupants experience acute health and comfort effects that appear to be linked to time spent in a building, but no specific illness or cause can be identified. In contrast, the term "building related illness" (BRI) is used when symptoms of diagnosable illness are identified and can be attributed directly to airborne building contaminants. What are the indicators of SBS? Building occupants complain of symptoms associated with acute discomfort, e.g., headache; eye, nose, or throat irritation;

dry cough; dry or itchy skin; dizziness and nausea; difficulty in concentrating; fatigue; and sensitivity to odors. The cause of the symptoms is not known. Most of the complainants report relief soon after leaving the building. What are the indicators of BRI? Building occupants complain of symptoms such as cough; chest tightness; fever, chills; and muscle aches

The symptoms can be clinically defined and have clearly identifiable causes. Complainants may require prolonged recovery times after leaving the building.

Failure to respond promptly and effectively to IAQ problems can result in the following; long- and short-term health problems, reduced productivity, possible relocation, strained relationships and potential liability issues.

At the present there are no legislated standards for indoor air quality in Ontario offices and other non-residential and non-industrial buildings. Most non-industrial building owners follow fresh air guidelines established by the American Society of Heating, Refrigeration and Air-conditioning Engineers (ASHRAE). These include ASHRAE standard 62-1989R (Ventilation for Acceptable Indoor Air Quality) and Standard 55-1992 (Thermal Environmental conditions for Human Occupancy). Other guidelines commonly used are those established by the Federal-Provincial Advisory Committee on Environmental and Occupational Health and the Ontario Ministry of Labour (MOL).

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