

## Indoor Air Quality

### Why is indoor air quality important?

People spend up to 90 per cent of their time indoors – at home, school and work. Poor indoor air quality may cause headaches, tiredness, coughing, sneezing, sinus congestion, shortness of breath, dizziness and nausea. It can irritate the skin, eyes, nose or throat. Allergy or asthma symptoms could get worse. Poor indoor air quality is caused by indoor air pollution. Knowing possible causes will help you improve the quality of the air you breathe indoors.

### What are the major indoor pollutants?

Indoor pollutants include:

**Biological contaminants** can come from both outside and inside the home. Fungi (moulds), insects such as dust mites and cockroaches, dander from fur-bearing animals such as dogs or cats, and dusts and pollens are some examples. Biological contaminants can cause allergic symptoms. For more information, see [HealthLinkBC File #65b Indoor Air Quality: Mould and Other Biological Contaminants](#).

**Combustion (burning) by-products** are gases and small particles caused by the incomplete burning of fuels such as oil, gas, kerosene, wood, coal and propane. Examples include fine particulate matter, carbon monoxide and nitrogen oxides. Sources include wood heaters and woodstoves, furnaces, gas stoves, fireplaces, car exhaust from an attached garage and tobacco smoke. For more information, see [HealthLinkBC File #65c Indoor Air Quality: Combustion By-products](#) and [HealthLinkBC File #30a The Harmful Effects of Second-hand Smoke](#).

**Formaldehyde and other volatile organic compounds (VOCs)** are chemicals found in materials such as plywood and particleboard, in furnishings such as furniture, drapes and carpets, and in personal care products. Cleaning agents, paints, lacquers and varnishes are additional sources of VOCs. VOCs can be released from these materials for several years. For more information, see [HealthLinkBC File #65d Indoor Air Quality: Volatile Organic Compounds](#).

**Asbestos** was used as an insulator and fire retardant for many years. It is sometimes still found in older homes. Asbestos does not cause a health risk unless it is frayed or crumbling and releasing fibers into the air that can be inhaled. Over time, exposure to asbestos can cause lung cancer. For more information, see [HealthLinkBC File #32 Asbestos: When Should I Worry?](#)

**Radon** is a naturally occurring radioactive gas. It is given off when uranium, which naturally occurs in some soil and rock, decays. Radon gas is odourless, invisible and has no taste. It can enter a home or building directly through the building's foundation from surrounding soil. Over time, high levels of inhaled radon gas may lead to lung cancer. High levels of radon have been found in parts of interior and northern British Columbia. Kits are available to measure the level of indoor radon. For more information, see [HealthLinkBC File #42 Radon in the Homes and Other Dwellings](#).

### How can I improve indoor air quality?

There are 3 basic ways to improve indoor air quality:

- 1. Control the source:** Remove the source of pollution or reduce the level of the emissions. This step should always be considered first to improve indoor air quality.
  - a. Biological contaminants**
    - Keep the house clean and dust-free to reduce allergens such as dust mites, pollen and animal dander. Clean heating ducts and change furnace, humidifier and air conditioning filters regularly
    - Use a vacuum cleaner that is equipped with a HEPA filter. You could install a built-in vacuum cleaner that vents outside your home
    - To stop or prevent mould, reduce humidity by venting air from moist areas, such as bathrooms, kitchens and clothes dryers, to the outside. Keep the bathroom and kitchen fan on or open a nearby window for at least 30 minutes after showering or cooking

- If water damage occurs, repair the leak and dry out damaged carpets, underlay and building material, or consider replacing them
- Do not carpet any area that is subject to moisture or flooding problems (e.g., certain basements)
- Regularly clean your humidifier

#### **b. Combustion by-products**

- Follow the manufacturers' instructions for fuel burning appliances. Install, service and repair them according to the manufacturer's instructions, change filters regularly and vent to the outside. Use fuel correctly in an EPA or CSA certified appliance
- Do not allow smoking in or near your home
- Avoid idling cars or using other gas-burning equipment indoors
- Install a carbon monoxide detector

#### **c. Volatile Organic Compounds (VOCs)**

- Use products with low VOC emissions. If possible, allow gases to be given off in storage before putting new furnishings and carpets into your home. If this is not possible, try to increase the ventilation in rooms with new furniture or carpets by opening windows and doors for as long as possible over several days
- Store paints and solvents in a separate area of your home. Use them only as directed and in well-ventilated areas. Recycle unwanted paints and solvents
- Do not mix different household cleaners or solvents together. Mixing products can create new pollutants and can be extremely dangerous

### **2. Improve ventilation:** Increase the amount of outdoor air coming indoors by keeping your home well ventilated, especially when cooking or during home renovations. Keep windows open and kitchen and bathroom exhaust fans turned on

Lack of proper ventilation may occur in tightly sealed buildings or those with too high a level of re-circulated building air. This may reduce indoor air quality. These types of buildings may also have higher indoor moisture or humidity levels, contributing to the growth of mould and mildew.

On days when outdoor air quality is very poor, such as during wildfires, consider limiting airflow from outdoors for a short period of time.

### **3. Clean the air:** Air cleaners may be used in the home in addition to improving ventilation and trying to control or eliminate sources of the pollution. Air cleaners often come in 1 of 2 forms. The most common are those cleaners designed to remove particles from the air, while less common are those designed remove specific gases and odours

#### **Using air cleaners**

- Air cleaners vary in their cost and in how well they work. They also may have different types of filters. Mechanical or electric air filters are the most common and are designed to remove particles from the whole house (in-duct) or from a single room (portable). For example, HEPA (high efficiency particulate air) filters remove particles from the air, while activated carbon filters remove one or more gaseous pollutants. If you buy a portable air cleaner, follow the manufacturer's specifications to choose the right size for the room you will use it in. Use the device that best meets your needs based on the type of pollutants you wish to capture. Also consider cost, energy and maintenance requirements. Change the filters regularly, as often as the manufacturer's instructions tell you to
- Ozone generators, a type of air cleaner, should not be used in your home because they produce harmful levels of ozone

### **For More Information**

For more information about indoor air quality and your health, visit:

- Health Canada - Air Quality [www.canada.ca/en/health-canada/services/air-quality.html](http://www.canada.ca/en/health-canada/services/air-quality.html)
- The B.C. Lung Association - Air Quality <https://bc.lung.ca/protect-your-lungs/air-quality-lung-health> or call toll-free 1 800 665-LUNG (5864)



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An agency of the Provincial Health Services Authority