

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, especially when ventilation is limited. Knowing possible causes will help you improve the quality of the air you breathe indoors.

What are the major indoor pollutants?

Biological contaminants can come from both outside and inside the home. Viruses, bacteria, fungi (moulds), insects such as dust mites and cockroaches, dander from fur-bearing animals such as dogs or cats, and dust and pollens are some examples. Biological contaminants can cause infections and allergic symptoms. For more information, visit [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, natural gas, propane, gasoline, kerosene, wood and coal. Examples include fine particulate matter, carbon monoxide and nitrogen oxides. Sources include gas stoves, furnaces, fireplaces, car exhaust from an attached garage, wood heaters and tobacco smoke. Smoke from wildfires can affect indoor air quality, even with the windows closed. For more information, visit:

- [HealthLinkBC File #65c Indoor air quality: Combustion by-products](#)
- [Wildfires and your health \(health feature\)](#)

- [HealthLinkBC File #30a The harmful effects of second-hand tobacco smoke and vapour](#)

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 are released from these materials and gradually decrease overtime. Materials can sometimes release VOCs for several years. For more information, visit [HealthLinkBC File #65d Indoor air quality: Volatile organic compounds \(VOCs\)](#).

Asbestos was used as an insulator and fire retardant for many years. It is sometimes still found in older homes or buildings. Asbestos does not cause a health risk unless it is frayed or crumbling and releasing fibers into the air that can be inhaled. Exposure to asbestos can cause lung cancer. For more information, visit [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, visit [HealthLinkBC File #42 Radon in homes and other dwellings](#).

How can I improve indoor air quality?

For detailed information, refer to the specific HealthLinkBC File for each type of contaminant.

There are 3 basic ways to improve indoor air quality:

1. Control the source:

- Remove the source of pollution or reduce the level of emissions. This step should always be considered first to improve indoor air quality. Some examples include detecting and repairing any water damage quickly (for biological contaminants), replacing fuel-burning appliances with electric alternatives (for combustion by-products) and using low-VOC products and building materials in your home
- **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 High Efficiency Particulate Air (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 (such as certain basements)
 - Regularly clean your humidifier

• 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
- Keep the kitchen fan on or open a nearby window for at least 30 minutes after cooking

• 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 (just a crack in winter), and kitchen and bathroom exhaust fans turned on
- Lack of proper ventilation may occur in tightly sealed buildings or those with too

much recirculated 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

- On days when outdoor air quality is poor, such as during wildfires, consider limiting airflow from outdoors

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 pollution. Air cleaners that filter particles from the air are best because air cleaners that use electrostatic precipitation can also generate ozone, which is a respiratory irritant. Some air cleaners are also designed to remove specific gases and odours

- **Using air cleaners:**

- Air cleaners vary in their cost and in how well they work. Mechanical or electric air filters are the most common. They are designed to remove particles from the whole house (in-duct) or from a single room (portable)
- Air cleaners may have different types of filters. For example, HEPA 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

- Health Canada – Air quality and health www.canada.ca/en/health-canada/services/air-quality.html
- The B.C. Lung Foundation – Air Quality <https://bclung.ca/lung-health/air-quality> or call toll-free 1-800-665-LUNG (5864)
- BCCDC – Portable Air Cleaners for Wildfire Smoke www.bccdc.ca/resource-gallery/Documents/Guidelines20and20Forms/Guidelines20and20Manuals/Health-Environment/BCCDC_WildFire_FactSheet_PortableAirCleaners.pdf (PDF, 1.17MB)



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