

Indoor Air Quality

Indoor air quality impacts the health and comfort of everyone who steps inside your doors, from staff to guests. Airtight buildings improve energy efficiency by minimizing heat loss, but without adequate ventilation, they can concentrate stale interior air and compound health issues. Meanwhile, medium-density fibreboard-based office furnishings, carpet glues, cleaning products, photocopiers and laser printers all add volatile organic compounds to the mix. How do you improve energy efficiency without compromising your guest experience and employee productivity? Read on.

What are VOCs?

Volatile organic compounds (VOCs) are organic chemical compounds that readily evaporate at room temperature. Some VOCs have distinct odours, while others are completely scentless. They originate from a variety of sources including paints, varnishes, solvents, cleaning products, carpets, photocopying equipment, upholstery fabric, pressed-wood furniture, fuel oil, cosmetics, glues and many other common household and workplace products. Exposure to VOCs can cause eye and nose irritation, headaches, nausea and dizziness. The fumes can also aggravate asthma and allergies. Some VOCs have been linked to different types of cancers and central nervous system damage.

Quick Start



Incorporate plants into your indoor environment. Plants bring a touch of colour and life to an indoor space; they also absorb air pollutants. This means potentially fewer employee sick days and a welcoming environment for customers.

Natural Air Filtering

Certain plants do an excellent job of filtering airborne pollutants. You may wish to consider some of the following species for your indoor environment.

Areca palm: boosts humidity, reducing overly dry air from forced-air heating systems.

Bamboo or reed palm: filters formaldehyde released by building materials, cigarette smoke and some household products.

Boston fern: filters both formaldehyde and xylene-found in certain solvents.

Janet Craig dracaena: widely used in homes; filters benzene from vehicle exhaust fumes.

English ivy: effectively removes airborne mould as well as formaldehyde and benzene.

Spider plant: filters formaldehyde and carbon monoxide—a colourless, odourless and deadly gas that can be produced by heating devices, gas ranges, fireplaces and vehicle engines.

Peace lily: filters benzene, xylene and toluene-found in solvents used in many common building, office and household products.

Dwarf date palm: can help strip formaldehyde from the air.

Snake plant: can remove formaldehyde and carbon monoxide from the air.

Dracaena: filters carbon monoxide and trichloroethylene, which can be given off by certain paints.

Visit [Green Living](#) magazine for a full list of houseplants that can help provide cleaner indoor air.

Try This!

The American Society for the Prevention of Cruelty to Animals publishes a [list of non-toxic indoor plants](#) that will not harm curious children or animals.

Where do indoor air pollutants come from? What can you do about them?

Floors

Carpet: Carpet provides an ideal environment for dust mites to grow, plus synthetic carpets can emit VOCs from glues and petroleum-based products.

- ◆ Try to decrease your use of carpet in areas where dampness can create problems with mould growth, such as bathrooms, basements, kitchen areas or near hot tubs. If carpets do get wet, be sure to dry them out completely.
- ◆ Vacuum carpets regularly, preferably using a high-efficiency particulate air (HEPA) filter to cut back on dust.
- ◆ When purchasing new carpet, consider natural fibres-such as wool, silk or hemp-that are coloured with natural dyes, or low-VOC-emitting carpet.

Hardwood: There are many good options when it comes to hardwood and similar types of flooring materials, including bamboo and cork, which both come from renewable resources. When using hardwood flooring, avoid using virgin wood; instead, choose a product that has been FSC-certified or recycled.

- ◆ Use low-VOC stains or polishes on hardwoods.
- ◆ When installing flooring that requires adhesive, look for low-VOC options.

Tile, Stone, and Concrete: Polished and sealed concrete floors are becoming increasingly popular, and can be finished with a variety of glosses, colours and textures. Not only are such floors energy efficient, there is very little waste from making cement compared with similar tile and stone floors.

- ◆ Tile, stone and concrete are all great flooring options for good indoor air quality as they do not promote dust mite growth and are low VOC.

Vinyl: Avoid vinyl flooring; both the material and its adhesives can emit VOCs as well as carcinogenic compounds. Further, the production of the material involves very toxic processes, and it emits deadly and toxic gases when burned.

Walls

- ◆ Look for low- or zero-VOC paint, and consider low-VOC wallpaper adhesives.
- ◆ Consider other non-toxic wall finishes. For example, check out National Geographic's [Green Guide](#) for reviews of milk- and clay-based wall products.

Lead Paint

You needn't worry about lead in today's paints, but if your building was built before 1960 there's a chance that there is, or was at one point, lead paint on your walls. In most cases, lead paint has been removed or covered up and shouldn't be a problem. It becomes a serious health concern only if old paint begins to chip or flake; you can breathe in lead-contaminated dust from the walls, which can damage your lungs. For this reason, be sure to dust and vacuum frequently in buildings that still contain lead paint, and consider taking steps to either remove the lead paint professionally or to have it safely sealed up. Do not attempt to remove it yourself.

For more information including how to do renovations in buildings with lead paint, go to [Health Canada](#) and check the links on that page for additional resources.

Try this!

When purchasing paint, read the label carefully to find information about the VOC content, which is listed in grams per litre, and can vary from 5 to 200. Choose one with a lower VOC content and higher percentage of solids or pigments.

For a list of low-VOC paints, check out [eartheasy](#).

Windows

- ◆ Blinds and upholstery window treatments can be a source of dust.
- ◆ Consider covering windows with natural and washable fabrics such as cotton, silk, wool and hemp. Blinds and shades made of easily dusted natural material, such as Forest Stewardship Council (FSC)-certified wood or bamboo, are great alternatives.

Furniture

Furniture can contain glues, particleboard, pressed wood, plywood, polyurethane foam and finishing chemicals, all of which can emit formaldehyde and other VOCs for months after delivery. Dust mites can thrive in upholstered furniture.

- ◆ Try to avoid buying foam-type furniture or furniture made of medium-density fibreboard as well as dyed materials, as these can all emit VOCs. Instead look for solid wood that is FSC certified and natural materials that have not been chemically treated.
- ◆ Use wood furniture that is finished with low-VOC or water-based stains and sealants.

Office

- ◆ Place printers and photocopiers in a well-ventilated room, preferably separate from your employees' general working area. Avoid a poorly ventilated basement or back room.

Bathroom

Since the humidity in bathrooms is higher than in other parts of the building, they are the best place for moulds and other biological contaminants to grow. As a result, bathrooms are also popular places to use harsh cleaning products, which can emit unhealthy chemicals.

- ◆ Keep bathrooms dry and well-ventilated.
- ◆ Cover bathroom walls-especially around showers and sinks-with ceramic tile whenever possible. Not only can this surface be washed and dried easily, but it is an effective moisture barrier.
- ◆ Check often for signs of mould around showers and sinks-on the ceiling and in corners. Mould can colonize any place where water collects, such as around a sink or tub.
- ◆ Try to fix leaks as soon as possible to avoid water seeping into walls or floors, where it can develop into a mould problem.
- ◆ Install exhaust fans in washrooms with showers and encourage people to turn them on when the shower is on and leave it running for 15 minutes after showering to clear lingering humidity, which can also promote mould growth. Some exhaust fans have timers to ensure they run long enough after a shower, but then turn off when it's time to save energy.
- ◆ Try to minimize the use of air fresheners, candles and incense, as they can release chemicals into the air. Instead use natural air fresheners such as lavender and high-quality candles that don't emit toxic chemicals.

Kitchen

Kitchens can be a source of wonderful scents that fill the air and whet your customers' appetites, but food-prep areas can also be a source of airborne pollutants.

- ◆ Install a proper ventilation system in the kitchen-especially those equipped with gas stoves-to carry airborne pollutants out and away.
- ◆ Perform regular mould inspections; moisture can also be a problem in a kitchen.

Basement

Many indoor air-quality issues originate with basements, which typically house fuel-burning appliances such as boilers, water heaters and furnaces, and chemical storage cabinets. Dampness can also be of concern.

- ◆ Ensure that fuel-burning appliances are well maintained and inspected yearly. Make sure you have a carbon-monoxide detector and test it frequently.
- ◆ Try to keep the humidity low in the basement to discourage the growth of mould. This can be done with dehumidifiers, and by reducing carpeting in areas that might be exposed to water.
- ◆ Store cleaning products, paints and other VOC-laden chemicals in airtight containers. Consider disposing of them permanently through a hazardous-waste depot in your area.

Cleaning Products

A clean, dust-free and mould-free workplace is a healthy workplace. Just be certain that your cleaning products aren't making matters worse for your staff and guests.

- ◆ Try using mild, low-VOC cleaning products. Try to avoid products that contain bleach or ammonia.

Try This!

Check out one of these organizations for non-toxic cleaning products and homemade alternatives:

[eartheasy](#)

[Guide to Less Toxic Products](#)

[Environmental Law Centre](#)

Also look for cleaner products that are approved by [EcoLogo](#).

Ventilation

- ◆ Consider opening the windows on pleasant days to provide your workplace with a breath of fresh air.
- ◆ Ensure that your building's ventilation system is cleaned and maintained annually. This will not only improve the quality of incoming air, but also maximize the system's efficiency.

Heat Recovery Ventilators

Heat recovery ventilators harvest the warmth of stale, moist, outgoing air and use it to pre-warm the fresh air coming into a building. This system can recover up to 85% of heating and cooling energy. For more information on how HRVs work, check out Natural Resources Canada's [How a Heat Recovery Ventilator Works](#).

Try This!

Before buying an air-filtration device, read information sheets from [The Lung Association](#) and [Health Canada](#) for guidance on what to look for in a filtration device that will suit you best.

Further References

Check out these organizations for more great tips and information on indoor air quality.

- ◆ [The Canadian Lung Association](#)
- ◆ [Office of Greening Government Operations, Public Works and Government Services Canada](#)
- ◆ [Health Canada, Indoor Air Quality](#)
- ◆ [Children's Health Environmental Coalition](#)