



## Solutions for a Healthier Environment at Home

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Most of our daily activities, work and family life, take place in closed environments. We go from home to the office by car or public transport; our children spent most of the day at school or playing at home. We tend to hang around in malls in preference to outdoor recreation activities. As a fact, we spent up to 90% of our time indoors.

We are all aware of the risks attached to high levels of outdoor air pollution but rarely realize the impact of indoor air quality on our comfort and health. Yet, it is demonstrated that at home the air is often more polluted than the air outside, from twice to a 100 times more depending on a set of conditions.

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Why is that? The reason is simple. Air pollution levels increase due to improved building insulation performance, lack of proper ventilation, and, for example, the use of synthetic materials and chemicals for household use. Indoor air is made up of outdoor air plus all the pollutants and allergens (such as dust mites, mold or animal dander) generated from actions carried out indoors. Actions we would never suspect having adverse impact on indoor air quality such as cleaning, refurbishing a room, cooking or having a shower, and others more obvious, like smoking, using household pesticides or hosting a furry pet.

### Indoor Pollution & Health Related Issues

The range of pathologies derived from our exposure to

pollutants and allergens at home can vary from a simple discomfort (fatigue, headaches, skin irritations...) to the development or the aggravation of chronic illnesses like allergies or asthma. Serious health effects may also incur. Second-hand tobacco smoke, asbestos and radon can cause cancer. Intoxication by carbon monoxide (CO) can be lethal. Lead can be responsible of developmental delays in children.

Symptoms will appear first among the most sensitive or the most exposed. Groups at risk are babies and infants, elderly people, pregnant women, allergic persons and those affected by respiratory problems (asthma, bronchitis, etc.). Sensitivity depends on each individual. Therefore symptoms are not always the same and appear at diverse degrees.

## How to Improve (and Maintain) the Quality of the Air You and Your Family Breathe at Home

### 1. Check your Home

The very first step to take is to consider the state of your residence and to understand the household habits. It will help in finding out the type of risks your family is exposed to. Here are some examples:

- A. Old buildings may contain lead (white lead-based paint, plumbing system) or asbestos (isolation materials). Wall paint should be in good condition, not fragmented, and isolation not apparent. Otherwise, there is risk of diffusion of pollutants.
- B. Humidity and mold are easy to spot: black stains in walls and ceilings, detached paper wall or condensation and moisture on inside glass windows. Check if there is any water leakage.

- C. Identify dangerous chemicals by inspecting all the products stocked at home: household cleaning products, household pesticides (chemicals used in and around the home to control insects, weeds, rodents, fungi, and germs), residual paint pots, solvents, etc. Check tags and look for hazard signs.
- D. The size and habits of your family can increase indoor air pollution: overpopulated dwellings, infrequent aeration of rooms, smoking habits, lack of regularity in dusting and cleaning, use of aerosols...

### 2. Control Humidity and Temperature Levels

These two factors are key in controlling the development of allergens and limiting the circulation of chemicals in the air.

- A. Considering an ambient temperature of 20°C, keep the relative humidity of air between 40% and 60%. Place a thermometer and a hygrometer (cheap devices are available in stores) in main living spaces like the living room and bedrooms. It will help monitor these parameters.
- B. Humidifiers will keep humidity level to the optimum when your air conditioning or heating systems are running.
- C. A punctual excess of moisture can be tackled by aerating. Check that a proper ventilation system is in place (see point 4). Exceptionally use a dehumidifier device if there is no other alternative.
- D. Avoid drying your laundry in poorly ventilated rooms. When possible dry your clothes outdoor. If a dryer appliance is used, functioning other than by condensation, ensure that the exhaust duct is well connected to the outdoors.

### *Is your household suffering from poor indoor air quality?*

*Because some people only develop symptoms similar to a cold or a mild viral infection, it is difficult to pinpoint indoor pollution as the direct cause. Here are some hints:*

- *When you stay at home, you often have headaches and/or your skin, upper respiratory system, and eyes are irritated (sneezing, running nose, red eyes...) and/or you feel irritated, feverish, etc. You feel much better when rooms are aerated or you stay away from home for a certain period of time.*
- *Symptoms develop after you move houses, renovate your home, buy new furniture, host a pet, a water leakage, use pesticides at home or introduce new household products.*

### 3. Reduce Chemicals and Allergens in the Air

Consider the following guidelines in order to reduce the risk of being exposed to harmful or irritating substances:

- A. Try not use any kind of pesticide at home. Fix mosquito nets to windows and use non-chemical methods available in store to get rid of other insects or pests. Most household pests can be controlled by eliminating food and the habitat for the pest both inside and outside.
- B. Limit the number of cleaning products. Prefer multi-purpose cleaner, soapy water or a vinegar solution. Environmental-friendly products are also a commercial alternative.
- C. Properly dispose of partially full containers of old or unneeded household chemical products (cleaning products, pesticides, paints...)
- D. Allergens and chemicals gather in dust. Frequent cleaning and vacuuming is necessary to avoid dust accumulation, at least do it once a week. It is recommended to use a vacuum cleaner with a HEPA filtration system. HEPA stands for High Efficiency Particulate Air filter.
- E. Maintain heating, ventilating, and air conditioning systems. Keep your air conditioning system clean and change filter frequently, as recommended by manufacturer. If you don't, dusty air will be circulating in your home.
- F. Wash blankets, pillows and duvets regularly at 60°C to get rid of dust mite debris.
- G. Make certain that combustion appliances (those which burn fuels for warmth, cooking, or decorative purposes) operate properly. A smell of combustion gas and an orange flame reveal a problem. Only buy certified and tested combustion appliances that meet current safety standards.
- H. Prefer hard wood to pressed wood when choosing for new furniture. If no alternative is available, purchase furniture or cabinets that contain a high percentage of panel surface and edges that are laminated or coated. This helps in limiting emissions of formaldehyde, a highly toxic and irritant chemical.
- I. Get advice from professionals on the composition of materials before engaging in renovation works (painting, insulating, adding partitioned walls, changing floor treatment or surface coatings, etc).



- J. Some interior plants, along with their associated micro flora, appear to reduce levels of several air pollutants and increase indoor relative humidity by releasing moisture into the air. In the other hand, plants may also reduce air quality, particularly through the production of pollens and spores.

### 3. Ensure Proper Air Exchange

Ventilation allows continuous renovation of the air circulating in your house. Some buildings are up to residential ventilation standards. Others will need some improvements. In general:

- A. Do not hesitate to open your windows regularly.
- B. Keep vents in bedrooms and living room open. They provide a permanent entry of fresh air.
- C. Make sure not to seal door bottoms to allow the flow of air through all rooms.
- D. If absent, it is recommended to place extractor fans in kitchen, bathrooms and laundry room. By doing this, excess ambient humidity and air pollutants are evacuated.
- E. If building a new house or retrofitting an existing one, consider installing a mechanical ventilation device. Heat-recovery ventilators or energy-recovery ventilators are both effective. Some do-it-yourself systems exist but better to seek expert advice. Choosing the right system involves careful consideration of your home and your specific situation.

We tend to put our mind at ease when we are at home, we feel safe and secure. Buildings are ment to protect us, nonetheless they can affect our health. Fortunately, indoor pollution issues can be easily tackled! Every household is unique and would require a specific set of targeted actions. Prevention is key to keeping air pollution levels down.

Be more conscious of your house weak points. Track any sign of water leakage, ventilation issues, etc. Seek professional advice and services when fixing your house or maintaining household appliances and other devices. It comes with a cost but remember you are investing in your family's health.

Change lifestyle habits and become a conscious buyer. This requires a lot of personal effort and will take time to achieve. Introduce changes gradually. Do not hesitate to talk to household members, your family needs to get involved and support your efforts. Keep in mind that children are particularly vulnerable to indoor air pollutants. Look for alternative, environment friendly, methods and products: you will protect your child and you will protect the planet!

### *Children are Vulnerable to Indoor Pollution*

*Young children are particularly sensitive to indoor pollution. Moreover, they are very much exposed as they explore the house crawling, reach to objects and put them in mouth, swallow paint flakes from degraded walls... Particular attention must be paid to their environment:*

- *Avoid carpeted floors.*
- *Limit the number of furniture and products made out of pressed wood.*
- *Refrain from smoking indoors.*
- *Clean regularly the air filter of your car.*
- *Be aware that an exaggerated hygiene and overuse of disinfectants increase children's risks of developing allergies.*
- *If your child is allergic to dust, it is important to use dust mite mattress and pillow covers, and limit the presence of dust-catcher elements such as wool blankets, heavy fabrics on window treatments and carpets. Purchase stuffed toys that are machine washable.*