



## INDOOR AIR QUALITY

### Fact Sheet

Clean air is important for good health, especially indoor air as we spend up to 90% of our time inside. We all have the ability to improve the indoor air that we breathe so read on to get more information on how to accomplish this!

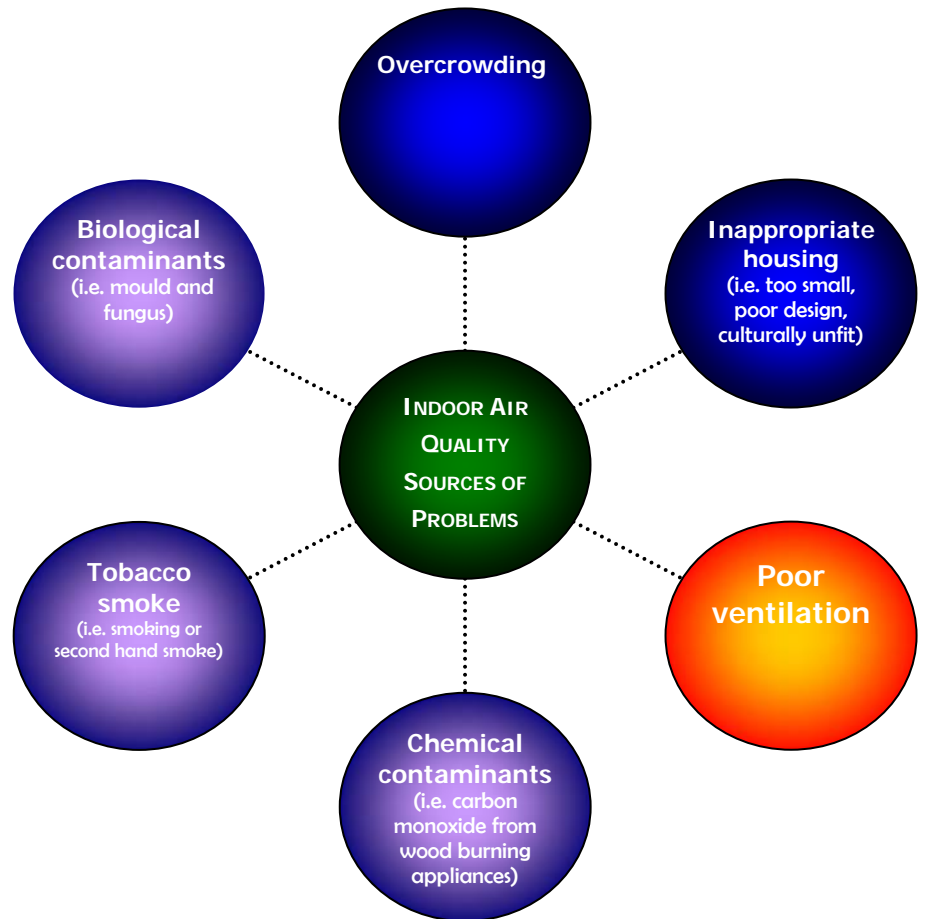
#### WHAT IS INDOOR AIR QUALITY?

Indoor air quality is defined as the nature of air that we breathe which affects our health. It is often related to household crowding and poor housing conditions. Until recently, concerns about indoor air quality use to be limited to concerns of spreading diseases like tuberculosis. However, indoor air quality affects our health in many other ways, some more obvious than others.

#### INDOOR AIR QUALITY IS AFFECTED BY

- ❖ Outdoor air quality
- ❖ Indoor emission characteristics
- ❖ Housing characteristics

We have the most control over the indoor emission characteristics (purple circles above). Ventilation improvements can be made



(orange circle) but as for overcrowding and inappropriate housing (blue circles), these may be more difficult to change.

So let's focus on what we can change more easily.

#### MOULD, DAMPNES AND HUMIDITY

##### WHAT IS IT?

When it comes to mouldy bread, most of us cringe at the thought and would not eat it.

When it comes to mould in our homes, we should be as vigilant. Its not always as evident because it looks only like a stain and comes in many colours. It may also not be visible but may have a musty odour.

If we let it go, mould reproduces by releasing small "spores" into the air and these spores are small enough that people can actually breathe them in causing health problems.



## THE MOULD EQUATION SPORES + BUILDING MATERIALS + WATER = MOULD GROWTH

### HOW TO PREVENT MOULD GROWTH

#### HERE ARE A FEW THINGS YOU COULD DO

- ❖ Diligently repair any water damage
- ❖ Clean thoroughly any visible or concealed mould growth

*See section on how to improve air quality*

## SECOND-HAND SMOKE WHAT IS IT?

Second-hand smoke is a combination of what is exhaled from a smoker and the smoke from a cigarette, cigar or pipe left burning. It also contributes the most to poor indoor air and causes many health problems including lung cancer, coronary heart disease, Sudden Infant Death (SIDS) and breathing problems including lung damage.

### HOW TO PREVENT IT

- ❖ No smoking indoors
- ❖ No smoking in cars
- ❖ No smoking close to homes and public buildings
- ❖ Not standing close to someone smoking outside

*See section on how to improve air quality*

## CARBON MONOXIDE WHAT IS IT?

It is a colourless and odourless gas which at low levels is considered dangerous over time and at high levels can lead to unconsciousness and even death.

## WHAT PRODUCES CARBON MONOXIDE?

- ❖ Burning fuel like propane, natural gas, gasoline, oil, coal and wood

### HOW TO PREVENT CARBON MONOXIDE?

- ❖ Get a carbon monoxide detector
- ❖ Leave barbecues, kerosene and oil lamps, outside (unless for indoor use)
- ❖ No smoking indoors
- ❖ If you have a garage, don't let gas powered vehicles idle in the garage

*See section on how to improve air quality*

## NITROGEN DIOXIDE WHAT IS IT?

Nitrogen is a gas which affects our health by causing lung irritations and may increase the risk of respiratory symptoms like coughing and wheezing.

### WHAT PRODUCES NITROGEN DIOXIDE?

- ❖ Outdoor cars and smokestacks
  - ❖ Indoor from fuel burning appliances like gas stoves
- ### HOW TO PREVENT NITROGEN DIOXIDE
- ❖ Exhaust fan for gas stoves which vents outside
  - ❖ Proper maintenance of fuel burning appliances

*See section on how to improve air quality*

## WOOD SMOKE WHAT IS IT?

It is smoke produced from wood burning mostly from wood burning stoves that can creep into your home and give off many impurities in the air. These impurities can cause eye, nose, and throat

irritations, headaches, nausea and dizziness, and respiratory problems.

## WHAT PRODUCES WOOD SMOKE?

- ❖ Opened wood stove
- ❖ Leaks and cracks from a stove
- ❖ Outdoor wood smoke which pollutes the nearby air and can seep into your home

### HOW TO PREVENT WOOD SMOKE?

- ❖ Choose a low emission stove
- ❖ Switch to another source of heating if needed
- ❖ Maintain your stove properly
- ❖ Clean your chimney

*See section on how to improve air quality*

**Health Canada gives other suggestions to help reduce the environmental and health impacts of wood smoke:**

- Using clean dry wood that has been cut, split and stacked for at least six months prior to burning;
- Burning smaller pieces of wood, which burn more efficiently and are a better source of heat;
- Stacking wood loosely in your firebox to allow the air to freely circulate around it;
- Avoiding to burn wood on days when air pollution levels are high;
- Never burning wood that has been painted or chemically treated;
- Not bringing wet or mouldy wood into your home; and
- Reducing the overall amount of wood that you burn.



## RADON WHAT IS IT?

Radon is a radioactive, colourless, odourless gas that is found naturally in the environment. Further, high level exposure of radon increases the risk of developing lung cancer.

### WHAT PRODUCES RADON?

- ❖ Uranium break down in soil and rocks
- ❖ Radon can seep into your home if it is built on soil and rocks containing uranium

### HOW TO PREVENT RADON?

Radon can only be tested commercially but high levels of radon are not widespread in Canada.

There is still some risk at any radon level so here is what you can do to limit the levels in your home:

- ❖ Renovate existing basement floors, particularly earth floors
- ❖ Seal cracks and openings in walls and floors, and around pipes and drains
- ❖ Keep the sub-floor of basements well ventilated

*See section on how to improve air quality*

## OVERALL HEALTH ISSUES RELATED TO POOR AIR QUALITY

Poor air quality in a home can bring about many health problems many of which are related to a combination of factors. For example, overcrowding, mould and smoke contribute to poor respiratory health and further, the spread and/or outcome of tuberculosis.

### HERE IS A LIST OF COMMON HEALTH PROBLEMS ASSOCIATED WITH POOR AIR QUALITY

**Tuberculosis**      **Hepatitis A**      **Allergies**  
 Eye, nose and throat infections  
 Decreased lung development in young babies  
 Asthma  
 Otitis media (ear infections)      Chronic bronchitis  
**Lower respiratory tract infections**

**Warning:** Health Canada warns against air cleaners that intentionally generate ozone which may be harmful to your health. See the following site for more information: [http://www.hc-sc.gc.ca/ewh-semt/air/in/poll/ozone/index\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/air/in/poll/ozone/index_e.html)

## HOW TO IMPROVE AIR QUALITY

**1. Source control:** to prevent pollutants from getting into the air.

- ❖ Avoid smoking indoors
- ❖ Keep your home dry
- ❖ Maintain fuel burning appliances properly (i.e. furnaces, fireplaces, gas stoves and water heaters)
- ❖ Use low-emission alternatives (i.e. paints, cleaning products, glues, insulation, carpets, fabrics, etc.)
- ❖ Keep painting, paint stripping and sanding outside as much as possible

**2. Ventilation:** to keep air pollutants at low levels.

- ❖ Open windows and doors (mostly during warmer weather as this can cause condensation)
- ❖ Turn on kitchen or bathroom exhaust fans (or install some if you don't have any)

**3. Air cleaning:** to remove pollutants that are already in the air.

Some air cleaners are good at removing particles from the air but most are not very good at removing gasses. This is why source control and ventilation are much better options for improving indoor air quality.

## HERE ARE SOME TYPES OF AIR CLEANERS AVAILABLE ON THE MARKET:

- ❖ Mechanical filters
- ❖ Electronic air cleaners
- ❖ Ion generators
- ❖ Hybrid models

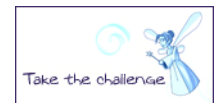
## FOR MORE INFORMATION

You can test your knowledge about indoor air quality at:



<http://26399.vws.magma.ca/quiz.asp?lang=en>

You can enter an indoor pollution challenge at:



[http://www.hc-sc.gc.ca/ewh-semt/air/in/games-jeux/chasse-air-chase\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/air/in/games-jeux/chasse-air-chase_e.html)

The information given has been adapted from the following:

Verhille S, Bos C, Choice E. National Collaborating Centre for Environmental Health (NCCEH). *First Nations Environmental Health Innovation Network (FNEHIN) State of Knowledge Draft on Indoor Air Quality. Draft March 2008.*

[http://www.hc-sc.gc.ca/ewh-semt/air/in/index\\_e.html](http://www.hc-sc.gc.ca/ewh-semt/air/in/index_e.html)

Call us Toll-Free at 1-866-960-5223 for more environmental health resources.