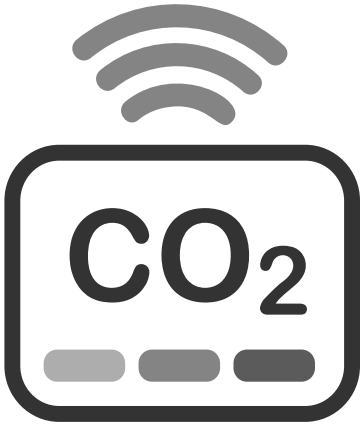
Indoor carbon dioxide information sheet



This sheet is intended as general information to accompany City Library's carbon dioxide monitor kits. Operating instructions for the Aranet4 HOME sensor are included in the kit.

What is carbon dioxide (CO_2) and how does it get into indoor air?

Carbon dioxide (CO_2) gas is naturally produced in your body and released into the room when you exhale. Because we release CO_2 at relatively high concentrations, one or more people gathered in a closed room will cause room CO_2 to gradually increase from ambient or outdoor levels (approx. 400 ppm) to higher levels that may cause discomfort, stuffiness or minor reversible health effects like headaches and fatigue.

Why monitor CO_2 levels?

Although CO_2 levels in indoor air are not immediately hazardous, monitoring the rise and fall of CO_2 levels is a great way to assess whether a room is well ventilated. A well-ventilated room is one in which the amount of fresh outdoor air coming in is sufficient for the number of people inside and their activities (e.g., dancing vs. sitting quietly).

How much CO_2 is OK?

- Health Canada has set the long-term exposure limit of CO_2 to 1000 ppm, averaged over a 24-hour period.
- Actual concentrations of CO_2 will fluctuate; e.g., you may see higher levels if you have a social gathering.
- CO_2 is associated with only minor, reversible health effects below 5000 ppm, but a high reading may indicate poor ventilation and increased exposure to particulates like pathogens, smoke and mould spores, or gases like volatile organic compounds and radon.

Aim to keep your CO_2 levels below 1000 ppm, or as close to outdoor levels as possible.

What other factors affect indoor CO_2 levels?

- The age of a building and its "air tightness".
- A building designed for one purpose but used for another.
- Poor design, such as the lack of openable windows.
- Other CO_2 sources include smoking, gas-burning appliances (stoves and water heaters), gas furnaces and fireplaces, and pets.

North Vancouver City Library

What to do if your CO_2 levels are too high

- Get fresh air into the space by opening a window. Using a fan with the windows closed will not reduce CO_2.
- Reduce the number of people in the space.
- Reduce or avoid strenuous physical activities indoors.
- Service or upgrade your heating, ventilation and air conditioning (HVAC) system.
- Using a portable air cleaner will not decrease CO_2, but can reduce your exposure to particulate air contaminants, like pathogens, mould, pollen, smoke and pet dander.

Limitations of CO_2 monitoring

- CO_2 sensors DO NOT detect other hazardous gaseous pollutants, like volatile organic compounds or radon. It is possible for dangerous indoor air pollutants to be present even if CO_2 levels are low.
- CO_2 sensors DO NOT detect viruses or directly indicate the risk of diseases such as COVID-19. There are situations in which transmission risk may be high even if CO_2 levels are low.

Have you tested your space for radon?

Radon is an invisible, hazardous gas that leads to approximately 3,000 lung cancer deaths in Canada every year.

Digital radon detectors are available to borrow from City Library. See **nvcl.ca/device** for more details.

CO_2 (carbon dioxide) vs. CO (carbon monoxide)

- Don't confuse CO_2 (carbon dioxide) with CO (carbon monoxide).
- Carbon monoxide can cause rapid illness or death. It is caused by the burning of substances such as propane or natural gas. Your CO_2 monitor will NOT detect carbon monoxide.

Placing your monitor for accurate reading

- Place the monitor on or by a wall at a height of 1 – 2 metres.
- Place well away from windows or air supply vents.
- Place at least 2 metres from people or open flames.

More information

For more information on air quality, please see Health Canada's air quality and CO_2 webpages:

Health Canada
Air quality and health
tinyurl.com/hcairquality

Health Canada
Carbon dioxide in your home
tinyurl.com/hccotwo

We are grateful for the assistance of the National Collaborating Centre for Environmental Health (funded by the Public Health Agency of Canada) in the production of this information sheet.

North Vancouver City Library