

Wildfires / Air Quality due to Wildfire Smoke

What is in wildfire smoke?

- Smoke from wildfires generally contains large amounts of fine particulate matter, and gases such as carbon monoxide and carbon dioxide. Depending on the type of material burned the smoke may also contain nitrogen oxides, sulfur oxides, volatile organic compounds (VOCs) and other compounds such as polycyclic aromatic hydrocarbons. Ozone gas may also be formed when nitrogen oxides react with the VOCs in the presence of sunlight.
- Concentration of smoke and its various components is highest closest to the fire.
- Depending on wind conditions and temperature inversions, the smoke may hang in the air for extended periods of time.

Where can the smoke come from?

Smoke from wildfires in Alberta or neighboring province(s), territories and/or United States can move into Alberta, resulting in poor air quality across the province.

Where can I get information about air quality?

The following options are available for getting air quality information:

- Sign up to Environment Canada's Alert Me service at: <https://ecalertme.weather.gc.ca> or to receive an automatic email when any Special Air Quality Statement (SAQS) is issued in your selected region(s).
- For individuals who live in communities where Air Quality Health Index (AQHI) is available, download the interactive map: <http://airquality.alberta.ca/map>
- Download the AQHI Canada app at: <https://open.alberta.ca/interact/aqhi-canada> which provides hourly updated AQHI and daily forecasts for all AQHI communities across the country.
- Utilize the Environment Canada website https://weather.gc.ca/mainmenu/airquality_menu_e.html where AQHI readings and forecasts are posted, as well as information regarding any current SAQS and/or Smog & Air Health Advisory (SAHA) that have been issued.

When should precautions be put in place?

- If a Special Air Quality Statement (SAQS) is issued by Environment Canada for your area, follow the recommended precautions recommended in the SAQS.
- If an Air Quality Health Index (AQHI) is available for your community, follow the recommended precautions provided in the AQHI associated messaging.

How long will the smoke/poor air quality last?

During a wildfire, smoke conditions can change quickly over short distances and can vary considerably hour-by-hour.

What are some of the health effects of wildfire smoke?

- Wildfire smoke is a respiratory irritant. Exposed individuals who are otherwise healthy may have the following symptoms when exposed to wildfire smoke:
 - Eye, nose, and throat irritation
 - Increased mucus production in the nose or throat
 - Cough
 - Wheezing
 - Shortness of breath or difficulty breathing, especially during exercise
 - Headache
- These symptoms are likely to be short lived and will resolve when smoke clears.
- Wildfire smoke exposure may aggravate pre-existing heart and lung conditions.

Are some people more affected than others?

Air quality affects everyone in the population and these impacts can be more serious for those with pre-existing medical conditions, especially underlying heart and/or lung problems.

Health effects may be exacerbated if you:

- Have heart or lung disease (e.g., congestive heart failure, angina, chronic obstructive pulmonary disease, emphysema, asthma)
- Are an older adult (especially if you have heart or lung disease)
- Are pregnant.
- Are a smoker.
- Are a child. Smoke can be more harmful to children because their respiratory systems are still developing, they breathe in more air than adults, and they are more likely to be active outside.
- Are involved in strenuous outdoor work or outdoor sports.

How do you protect yourself and your family against the effects?

It is important that we all take the necessary precautions to protect ourselves from the hazardous effects of smoke. When a Special Air Quality Statement or air quality advisory is in effect:

- Follow the recommendations in the statement or advisory.
- Monitor your symptoms.
- Minimize outdoor physical activity.
- Remain indoors with windows, doors and air circulation fans/vents closed. If the air quality gets better for a short time, air out your house by opening doors and windows to circulate fresh air.

- If you have an air-conditioner, keep the fresh-air intake closed and the filter clean to prevent outdoor smoke from getting inside.
- Avoid running fans, such as “whole-house fans” or “fresh air ventilation systems”, that bring more smoky outdoor air inside. If you have central air conditioning, set it to recirculate. Keep it running to help filter the air and keep your family cool.
- Stay inside particularly if you have breathing difficulties.
- Vehicles should not be used as a shelter, but as a means to get to one or to leave the area.
- While driving, keep windows and vents closed. Put your car fan on re-circulate mode to avoid drawing in outdoor air.
- Drink plenty of water, which helps keep your nose and mouth moist.

Will it help to wear a mask?

- Paper “dust” masks, surgical masks or scarves/bandanas (wet or dry) will not protect your lungs from the fine particles in wildfire smoke. In fact, masks may lead to a false sense of security, which may encourage increased physical activity and time spent outdoors, resulting in increased exposure to smoke. They can also make breathing more difficult.

What should I do if I am experiencing symptoms?

- If you are at work, report it to your supervisor.
- If you have health concerns, you can call Health Link 24 hours a day, seven days a week, toll-free at 811, to speak to a registered nurse.
- If you have respiratory or cardiovascular disease, follow your healthcare provider’s directions and call if your symptoms worsen. If you think you are having a heart attack or stroke or otherwise in need of immediate medical attention, dial 9-1-1

Do air-purifying machines help remove smoke particles inside buildings?

- Portable air cleaners with HEPA filters and/or electrostatic precipitators (ESP) can reduce indoor particle levels, but most are not effective at removing gases and odours. Air cleaners using ozone will not remove particles unless they also use HEPA filters and/or ESP technology. Also, humidifiers or dehumidifiers are not air cleaners and will not do much to reduce the amount of particles in the air during a smoke event.

I operate a non-residential building with outside air intakes. Should I close the outside air intakes during a wildfire smoke event?

- Every non-residential building has a uniquely designed ventilation system, and any changes, even temporary ones, can affect building occupants and indoor air quality. If your building is strictly an office environment, it may be wise to cut back or eliminate outside intake into the building during a wildfire smoke event. If the building has labs or special ventilation systems, it may not be wise to reduce outside air flow if ventilation is needed to prevent the build-up of chemicals in the building. We recommend you consult with a heating, ventilation and air- conditioning professional or someone who knows your special ventilation needs for guidance on this issue.

Where can I find more information and resources?

Visit [AHS Air Quality page](#) for information on how to reduce your health risk as well as for current and forecast AQHI values.

MyHealthAlberta has information about wildfire and your health at <https://myhealth.alberta.ca/Alberta/Pages/wildfire-smoke-health.aspx>

Please continue to monitor alerts and forecasts issued by Environment Canada. Up to date air quality information is available by subscribing to “EC Alert Me” service so that you can receive updates on the air quality in your email box automatically. Click on the link below to be directed to the EC Alert Me homepage: https://ecalertme.weather.gc.ca/home_en.php

Wildfire Smoke: OHS information for Workers and Employers issued by Government of Alberta <https://open.alberta.ca/publications/9781460135273>