

WILDFIRE SMOKE

Health Concerns



From a health perspective, wildfires are a concern as the smoke generated can range from a mild to severe irritant and for some individuals it can even be life threatening. When wildfires are causing air pollution in your area take appropriate measures to avoid the smoke as much as possible.

The components of Wildfire Smoke

Wildfire smoke is composed primarily of carbon dioxide, water vapor, carbon monoxide, particulate matter, hydrocarbons and other organic chemicals. The actual composition of smoke depends on what is being burned, the temperature of the fire and the wind conditions. Wildfire smoke contains fine and coarse particulates. Fine particulates are invisible to the eye while coarse particulate tend to be visible. The fine particles are particularly dangerous because they can reach deep into the lungs.

Who is at greatest risk from Wildfire Smoke?

The effects of smoke range from eye and respiratory tract irritation to more serious disorders for individuals with pre-existing chronic conditions such as asthma, chronic obstructive pulmonary disease (COPD), diabetes and heart disease.

- Older adults are more likely to be affected by smoke
- Children are more likely to be affected by health threats from smoke
- Individuals who are exerting themselves outdoors may be more susceptible to adverse effects of smoke

If there is an air quality advisory in your area, check with [BC Air Quality - Advisories](#) for current information.

Do I need to wear a mask or respirator?

There is no evidence that respiratory protection is required when indoors. Commercial building heating, ventilation and air conditioning systems are equipped with filters and adjustable air intakes. During times with high levels of smoke the amount of outside air can be reduced which limits the amount of smoke entering the building. By filtering and reducing the amount of outside air brought into a commercial building through the air handling system, the indoor air quality is better than outside and better than many homes that rely on windows and forced air furnaces to condition the air.

Wildfire smoke is generally deemed as an irritant. Dust masks only filter larger particulate matter and surgical masks are even less effective. While a *respirator* (e.g. N95) can protect against large and small particles they must be used properly. The user must be assessed and deemed medically fit to wear a respirator, it must be sized properly and the user trained and tested to ensure they can obtain a proper seal.

By regulation, in situations where respiratory protection is issued, an evaluation of the environmental conditions and work must be performed.

Breathing while wearing a dust mask or respirator is more laborious than normal breathing and can create a health risk for people with lung or heart conditions. An untested or ill-fitting respirator can *increase* the health risks to the user. If there is not a complete seal against the face there will be leakage around the edges, allowing unfiltered air to be breathed in. The heavy breathing from wearing a respirator/dust mask will pull the unfiltered air containing small particles deeper into the lungs than if the user were not wearing a respirator.

If you must spend time outdoors during smoky periods do not rely on dust masks or surgical masks for protection, they are not designed to seal against the face. Instead stay inside and limit your time and activity outdoors. If you have staff that must undertake strenuous work activity outdoors, contact a BCPSA Occupational Safety Specialist for advice using ask [MyHR](#) or call 1-877-277-0772.

How do I avoid exposure to Wildfire Smoke?

Stay indoors with windows and doors closed. Do not undertake any strenuous outdoor activity.

- Do not run fans or ventilation systems that bring smoky outdoor air inside.
- If you have an air-conditioner run it only if it effectively filters smoke from outdoors.
- If your vehicle has air conditioning, ensure it is set to “re-circulate”.

If you have central air conditioning that uses your furnace, change the standard air-conditioner filter to a medium or high efficiency filter. If you have a wall-unit or window-unit air conditioner, set it to “re-circulate”.

Air conditioning units reduce the amount of outside particulate that can travel indoors by trapping them in their filters. Effective filtration provides the primary defense for building occupants from air drawn into a building through the HVAC system. Medium and high efficiency filters are typically used to remove bacteria, pollen, soot, and other small particulates commonly found in the air, particularly during a wild fire. Filter efficiency defines how well the filter cleans indoor air by removing airborne particles.

Resources

<http://www.bccdc.ca/about/news-stories/stories/2018-wildfire-smoke>

<https://www.healthlinkbc.ca/health-feature/forest-fires-and-air-quality>

https://www.interiorhealth.ca/AboutUs/MediaCentre/NewsReleases/Documents/IH%20Wide%20Smoky%20Skies%20PSA%20-%20Final_Aug%208%202018.pdf

<https://www.interiorhealth.ca/YourEnvironment/EmergencyPreparedness/Documents/Smoky%20Skies.pdf>

<http://www.hss.gov.nt.ca/sites/www.hss.gov.nt.ca/files/smoke-exposure-wildfire-guidelines.pdf>