Wildfire Smoke:
Schools & Childcare Facilities

Reduce wildfire smoke exposure to help protect health

Wildfire smoke can worsen air quality in our communities and affect our health. Smoke from wildfires is a mixture of gases and fine particles ($PM_{2.5}$). Fine particles can be breathed down deep in our respiratory tract where they can cause damage. Breathing in wildfire smoke can have short and long-term effects on our lungs, heart, and other organs.

Children, infants and those with certain chronic health conditions, such as asthma, heart disease and diabetes, are especially vulnerable.

Common wildfire smoke symptoms:

- Sore throat
- Mild cough
- Headaches
- Phlegm
- Eye irritation
- Runny nose

Severe wildfire smoke symptoms:

- Dizziness
- Severe cough
- Heart palpitations
- Chest pain
- Shortness of breath
- Wheezy breathing

People with symptoms should promptly stop physical activity and seek cleaner air during smoky conditions. Those with severe symptoms should seek medical attention.

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Ways to prepare for wildfire smoke

*Prepare a "**Wildfire Smoke Readiness Plan**" before the season. Consider including the following options as part of the plan, where feasible and appropriate:*

- ❑ **Air quality warnings**: Be ready to receive notifications by signing up at WeatherCAN and/or Metro Vancouver.
- ❑ **Outdoor activities:** Plan to adjust outdoor activities when it's smoky, including shifting to lighter activities and moving some activities indoors.
- ❑ **Signs & symptoms:** Before each season, ensure staff know the signs of smoke exposure and when medical attention may be needed.
- ❑ **Children with chronic conditions**: Be aware that children with chronic health conditions may be more vulnerable. Make sure that those who are prescribed medications have easy access to them (e.g., inhalers for asthma). Make sure children with asthma have an Asthma Action Plan in place.
- ❑ **HVAC system**: Maintain the building's heating, ventilation, and air conditioning (HVAC) system.
- ❑ **Ventilation:** See if HVAC settings could be temporarily adjusted to limit smoky air from coming indoors by safely reducing intake of outdoor air or running the system on recirculation mode. Indoor air should pass through the system's filters regularly to effectively remove particles. MERV 13 filters only remove about 50% of the smallest particles on the first pass (see ASHRAE Guideline 44P for details).
- ❑ **Enhance filtration:**
  - ❑ Upgrade HVAC filters to at least a MERV 13 (MRP 1900), and ideally to MERV 16+ or HEPA filters, before the smoke season.
  - ❑ Consider adding additional filtration to air intake vents where possible (see ASHRAE Guideline 44P for details).
  - ❑ Plan to use portable HEPA air cleaners or Do-It-Yourself (DIY) air cleaners during smoky periods. See information on the last page.
  - ❑ Purchase replacement air filters before the season.
- ❑ **Consider air quality monitoring** to better understand air pollution levels.

Contact healthyenvironments@fraserhealth.ca for support with developing a smoke readiness plan and/or questions about air quality monitoring.

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What to do when it's smoky

*Activate your "**Wildfire Smoke Readiness Plan**", including the following, where feasible and appropriate:*

- ❑ **Monitor the air quality:** Be aware of any air quality warnings and check your local Air Quality Health Index (AQHI) regularly. Follow the guidance provided with each AQHI rating (see the table below).
- ❑ **Outdoor activities**: Adjust activities based on AQHI ratings and guidance.
- ❑ **Monitor symptoms**: Have staff monitor for symptoms of smoke exposure, particularly among children with chronic health conditions. Seek medical attention if any child has severe symptoms.
- ❑ **Adjust ventilation**: Keep windows and doors closed but ensure that indoor spaces do not get too hot. Indoor temperatures below 26°C are best. If possible, adjust HVAC settings to limit entry of smoky air.
- ❑ **Filter indoor air**: Ensure that appropriate HVAC filters are in place. Use portable HEPA air cleaners where needed.
- ❑ **Seek cleaner, cooler air:** Consider visiting libraries, community centres, or other indoor public spaces that have air conditioning and/or filtered air.
- ❑ **Closures:** Closures for health reasons, including wildfire smoke exposure, should only be implemented in discussion with public health authorities.

1-HOUR $PM_{2.5}$ ($\mu g/m^3$)	PROVINCIAL AQHI	AQHI RISK CATEGORY	ACTIONS TO IMPROVE INDOOR AIR QUALITY	ACTIONS FOR OUTDOOR ACTIVITIES
0 - 10	1	LOW	**Normal air quality** in British Columbia.	**Encourage outdoor play** as much as possible.
11 - 20	2			
21 - 30	3			
31 - 40	4	MODERATE	Keep exterior **windows and doors closed.** Make sure the indoor environment does not get too hot. Run **portable HEPA / DIY air cleaners** continuously in spaces used by children. **Enhance filtration** in the building ventilation system (minimum of MERV 13 or higher). Run the building ventilation system in the **"re-circulation"** mode. When possible, **monitor** for temperature, particulate matter, and CO_2 indoors.	**Allow** children who experience symptoms to modify their activities or stay indoors. **For younger children** (under 5) consider limiting their time outdoors. **Check-in** on all kids especially those with asthma*.
41 - 50	5			
51 - 60	6			
61 - 70	7	HIGH		**Move activities indoors** whenever possible. If outdoor activities are required, limit them to **low intensity activities.** **Cancel or postpone** high physical exertion activities outdoors. **Check-in** on all kids especially those with asthma*.
71 - 80	8			
81 - 90	9			
91 - 100	10			
101+	10+	VERY HIGH		**Move all outdoor activities indoors.** **Limit the intensity** of activities indoors, if indoor $PM_{2.5}$ is elevated. **Check-in** on all kids especially those with asthma*.

*While asthma is mentioned as the most common chronic lung disease of childhood, these considerations are also applicable to children with other respiratory diseases or ongoing respiratory symptoms from a resolving viral infection.

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Air Cleaners

When choosing air cleaners, consider units that have:

- ❑ **HEPA filters** to remove fine particles in smoke.
- ❑ **Activated carbon filters** to remove gases in smoke.
- ❑ **AHAM (Association of Home Appliance Manufacturers) certification**
- ❑ **The right sizing**. Check the recommended maximum room size to make sure units are sized for your space. Multiple devices may be needed in larger spaces. See BCCDC Portable Air Cleaners for Wildfire Smoke for more information.
- ❑ **Low ozone certification** for units that use electrostatic precipitation or ionizing technologies. These units can create ozone gas, which is a respiratory irritant.

When using air cleaners, consider the following:

- ❑ Use air cleaners in the room(s) where **children spend most of their time**.
- ❑ Place air cleaners in locations where the **airflow is not restricted** by walls, furniture, curtains or other objects.
- ❑ **Run air cleaners continuously** throughout the day, and if possible, an hour before the start of the day.
- ❑ Air cleaners work best with windows and doors closed. Ensure **indoor temperatures** are measured and indoor spaces do not get too hot.
- ❑ Run air cleaners at the **highest setting** feasible. If units are too loud, use a lower setting.
- ❑ Have a plan to **regularly replace filters**, as directed by the manufacturer.

Additional Information:

Wildfire Smoke Webpage

Heat Factsheet

Extreme Heat Safety Webpage

Ventilation Factsheet