

Wildfire Smoke Recommendations for Schools

Wildfire smoke events are becoming more frequent as the climate changes, resulting in more days with poor air quality that can impact health. Wildfire smoke is a mixture of small particles and gases. The small particles, also known as fine particulate matter (PM_{2.5}), are the greatest health concern because they can travel deep into the lungs and cause irritation and inflammation. Exposure to PM_{2.5} can have both short-term and longer-lasting health impacts.

For more information, visit [Wildfire Smoke \(bccdc.ca\)](https://bccdc.ca/wildfiresmoke)

Children and youth are especially susceptible to wildfire smoke exposure for three reasons:

1. Their lungs, other organs, and immune systems are developing rapidly, and smoke may affect these processes at the cellular level.
2. They inhale more smoke because they breathe faster and inhale more air per kilogram than adults.
3. They inhale more smoke because they are more physically active than adults, especially outdoors.

Some children and youth may be particularly susceptible to wildfire smoke, and in need of special attention during smoky conditions:

- Individuals with asthma may have acute attacks during smoky conditions. Families should work with their health care provider to establish an [asthma action plan](#), and communicate with school staff about the plan.
- Individuals with special needs and those who have difficulty communicating may need help assessing how the smoke is affecting them.
- Individuals with diabetes may find it more difficult to balance their blood sugar.
- Individuals with other chronic conditions may also be more affected by smoke.

Reducing exposure to wildfire smoke is the best way to protect health during wildfire events. Schools should ensure plans are in place to support children with symptoms through consultation with parents and guardians and familiarity with their care plans. This may include stopping physical activity and seeking cleaner air during smoky conditions. Those with severe symptoms may need medical attention following school emergency care protocols.

Common symptoms of wildfire smoke exposure:

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

Severe symptoms of wildfire smoke exposure:

- Difficulty breathing
- Persistent wheezing
- Severe cough
- Dizziness

Staff and other adults with asthma, COPD, and other chronic conditions may also be susceptible to wildfire smoke and should monitor their symptoms, reduce exposure and plan accordingly.



SCHOOL PREPARATION CHECKLIST BEFORE WILDFIRE SEASON

- ☐ Subscribe to air quality bulletins and advisories in your region
 - Lower Mainland: <https://rb.gy/en1cb>
 - Outside Lower Mainland: <https://rb.gy/xau78t>
- ☐ Know how to check air quality in your region at [BC Air Quality](#) or [AQ Map](#).
- ☐ Develop a “Wildfire Smoke Readiness Plan” to prepare for wildfire smoke. Your regional public health authorities may have programs to support you.
- ☐ Prepare school staff to recognize the symptoms related to wildfire smoke and know when medical attention is needed.
- ☐ Keep up-to-date records of students who have chronic health conditions or special needs that make them more susceptible to wildfire smoke.
- ☐ Work with families and guardians to make appropriate plans and arrangements for susceptible students during wildfire smoke events, including consideration for:
 - Moving outdoor activities (e.g., recess and outdoor assembly) inside.
 - Choosing less strenuous activities for physical education.
 - Ensuring those with rescue medications (e.g., inhalers for asthma) have easy access to them at school.
 - Ensuring cool, cleaner indoor air spaces are available.
- ☐ Prepare your school to provide cleaner air during a wildfire smoke event:
 - Ensure building ventilation and air filtration systems are maintained according to their design specifications.
 - During wildfire smoke events, air filtration with a rating of MERV 13 or higher is recommended where equipment is compatible with such filters. Assess whether the existing building ventilation system can accommodate these filters. <https://rb.gy/yy49h>
 - Have commercial or DIY portable air cleaners ready to use during wildfire smoke events. Ensure that they are adequate for the size of the space. The Clean Air Delivery Rate (CADR) is a performance measure that can be used when selecting appropriate air cleaners. <https://rb.gy/wrwnxu>
 - Consider using low-cost PM_{2.5} sensors outdoors and indoors to understand air quality around your school and the effectiveness of your indoor air quality management strategy.
- ☐ Hot weather may also be a concern during smoky periods. Schools should plan to apply measures (e.g., air conditioning, window shading) to maintain safe indoor temperatures and cool spaces with cleaner air. For most people, including children, heat-related illness is a bigger health risk than wildfire smoke.



SCHOOL ACTION CHECKLIST DURING A WILDFIRE SMOKE EVENT

- ☐ Monitor air quality bulletins and advisories in your region.
 - ☐ Monitor the local Air Quality Health Index (AQHI) closely at [BC Air Quality](#) or [AQ Map](#). Note that the index can change hourly, and should be monitored throughout the school day.
 - ☐ Monitor air quality outside and inside your school if you have low-cost PM_{2.5} sensors on site.
 - ☐ Check wildfire smoke forecasts for your region to plan ahead. <https://rb.gy/xhrywv>
 - ☐ Be alert to symptoms among students. Take action to reduce their exposure to wildfire smoke and seek medical attention if they have severe symptoms.
- ☐ Reduce exposure to wildfire smoke as much as possible. Keep windows and doors closed during smoky periods if temperatures allow. It is best to keep indoor temperature below 26°C.
 - ☐ Use building air filtration systems and portable air cleaners to reduce indoor PM_{2.5} concentrations.
 - ☐ Use the AQHI (shown below) to guide actions for reducing student risk and improving indoor air quality.

TABLE 1: Air Quality Health Index (AQHI) and Recommended Actions for Schools.

1-HOUR PM _{2.5} (µg/m³)	AQHI	AQHI RISK CATEGORY	ACTIONS TO REDUCE STUDENT RISK	ACTIONS TO IMPROVE INDOOR AIR
0 – 10	1	LOW	• Normal outdoor air quality for BC. Encourage outdoor play as much as possible.	• Normal outdoor air quality for BC. Maintain normal school operations.
11 – 20	2			
21 – 30	3			
Whenever wildfire smoke is affecting air quality, monitor symptoms among students. Allow those with symptoms to modify their activities or stay indoors.				
31 – 40	4	MODERATE	• Reduce intensity of short-duration (less than 1 hour) outdoor activities • Consider rescheduling or moving multi-hour outdoor events indoors with filtered air.	• Close exterior doors and windows if safe to do so without overheating. • Limit entry and exit to one or two doors. • Use commercial and DIY air cleaners. • Increase the filtration capacity of ventilation systems.
41 – 50	5			
51 – 60	6			
61 – 70	7	HIGH	• Allow indoor recess and lunch • Move strenuous activities indoors with filtered air • Cancel or postpone multi-hour outdoor events if they cannot be moved indoors with filtered air	
71 – 80	8			
81 – 90	9			
91 – 100	10			
101+	10+	VERY HIGH	• Move all outdoor activities indoors with filtered air	

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BC Centre for Disease Control
Provincial Health Services Authority

FOR MORE INFORMATION bccdc.ca/wildfiresmoke