

Wildfire Air Quality School Guidance

Wildfires release pollutants into the air which can pose a significant risk to those in surrounding communities. Wildfire smoke contains fine particulate matter and gases released when wood and other substances are burned. Breathing fine particulates less than 2.5 micrometers in diameter (PM_{2.5}) can cause acute medical issues and also exacerbate symptoms in those with chronic medical conditions. The most vulnerable populations that can be affected during a wildfire include those with asthma, chronic obstructive pulmonary disease (COPD), heart conditions, infants, older adults and pregnant persons.

Schools can take some simple measures to

- assess outdoor air quality,
- prevent the effects of poor outdoor air quality on indoor spaces and
- protect students and staff during wildfires.

Assessing Outdoor Air Quality

The Air Quality Index (AQI) is a tool created by the Environmental Protection Agency (EPA) to measure how clean or polluted the air is in your area and how it could impact your health. It tracks five main pollutants—ground-level ozone, particle pollution (also known as particulate matter, including PM_{2.5} and PM₁₀), carbon monoxide, sulfur dioxide, and nitrogen dioxide—to help protect public health. It uses a color-coded system, with green for good air quality and maroon for very unhealthy air. Based on the pollution level, the AQI gives advice on whether it's safe for everyone to be outside, or if certain groups—like children, the elderly, or people with respiratory issues—should limit their time outdoors.

It's a helpful way to stay informed about air quality and take action when needed. For guidelines concerning air quality categories and activity recommendations, please refer to Get Smart about Wildfire Smoke- Guidelines for Schools and Wildfire

Smoke(<https://www.cde.ca.gov/ls/ep/documents/schlairqualityguide.pdf>)

Air Quality Index		
AQI Category and Color	Index Value	Description of Air Quality
Good Green	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Moderate Yellow	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups Orange	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Unhealthy Red	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy Purple	201 to 300	Health alert: The risk of health effects is increased for everyone.
Hazardous Maroon	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

Credit: www.epa.gov

To stay updated with real-time/forecasted Air Quality in your area, use resources such as:

- www.AirNow.gov
- South Coast AQMD: Download the mobile app: <http://www.aqmd.gov/mobileapp> or visit <https://www.aqmd.gov/home/air-quality/air-quality-forecasts>

Prevent the Effects of Poor Outdoor Air Quality on Indoor Spaces

- **During wildfires, set HVAC to recirculation mode:** Wildfires can cause the Air Quality Index (AQI) to rise in nearby areas. When this happens, or if you see or smell smoke, set

your HVAC system to recirculation to prevent polluted outdoor air from entering the building and worsening indoor air quality.

- **Use the best filters your HVAC system can handle:** Install the best filters your system can handle (MERV 13 or higher), to trap more pollutants. If already in use, check they're clean, free of soot or debris, and replace them as needed to maintain good air quality.
- **Add portable HEPA air cleaners if needed:** If your HVAC can't handle MERV 13 or higher filters, consider using portable HEPA air cleaners in classrooms. For maximum efficiency, point HEPA air cleaners toward the center of the classroom and away from HVAC returns.
- **Test smoke alarms and replace batteries:** Ensure alarms are working and replace batteries yearly.
- **Postpone activities with chemicals:** Consider delaying science or art activities that involve chemicals during poor air quality to prevent worsening indoor air quality.
- **Avoid leaf blowers:** Avoid using leaf blowers during school hours to prevent dust, dirt, and ash from being stirred up.
- **Clean outdoor toys and equipment:** Rinse off outdoor toys and school apparatus that may have ash.
- **Clean lunch tables and surfaces:** Clean outdoor lunch tables and any indoor cafeteria surfaces if contaminated by smoke or ash. (Refer to cleaning section below)

Protecting Students and Staff During a Wildfire Emergency

In case of a fire emergency, please follow your school's evacuation plans to safely evacuate students and staff with attention to those with disabilities. If possible, work with local law enforcement agencies and the fire department to make decisions about evacuations. Please refer to the California Emergency Management for Schools: A Guide for Districts and Sites ([https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/California-Emergency-Management A-Guide-for-Districts-and-Sites_Final-05-11-23-2.pdf](https://www.caloes.ca.gov/wp-content/uploads/Preparedness/Documents/California-Emergency-Management-A-Guide-for-Districts-and-Sites_Final-05-11-23-2.pdf))

Recommendations when your School is Affected by Nearby Wildfires

- **Keep doors and windows closed during smoke or ash exposure:** If smoke and/or ash is affecting your school, close all doors and windows to prevent pollutants from entering the building. After a fire, regularly check outdoor air quality index (AQI) prior to opening windows or doors for ventilation, and use the AQI to guide decisions about outdoor activities.
- **Consider wearing a respirator mask if air quality is poor:** If you must go outdoors when the AQI is elevated, or you see or smell smoke, or see ash in the air, consider wearing an N95 or P100 mask, especially if you experience health effects due to air pollution. These masks better protect against breathing in fine particles in wildfire smoke. Make sure the mask fits well, with no gaps, for maximum protection. Never put masks on children younger than 2 years of age due to the risk of them suffocating.
- **Turn off HVAC if school isn't in session:** If your school is not in session and there may have been significant contamination of indoor spaces, it may be advisable to turn off HVAC system to allow any smoke or ash that may have entered the building to settle prior to cleaning. (Refer to cleaning section)

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- **Clean air intakes if needed:** Depending on the severity of smoke and ash affecting your school, consider cleaning the furnace and air conditioning unit air intakes to ensure better air quality.
- **Create an air quality plan:** Work with your Facilities Management team to develop a comprehensive plan for managing indoor air quality during a wildfire or when air quality is elevated around your school.

Focus on Medically Vulnerable Populations

- Students and staff with conditions like asthma, chronic obstructive pulmonary disease (COPD) and heart disease are more likely to be at risk for medical emergencies when surrounding air is contaminated with smoke and ash.
- Students with asthma should have nearby access to their inhalers. During respiratory emergencies, 911 should be called immediately.
- In the medically vulnerable population, activities that require exertion during periods of poor air quality can exacerbate medical conditions. For guidelines concerning air quality categories and activity recommendations, please refer to Get Smart about Wildfire Smoke- Guidelines for Schools and Wildfire Smoke(<https://www.cde.ca.gov/ls/ep/documents/schlairqualityguide.pdf>)

Cleaning

Disclaimer: if other local or regulatory governmental agencies (ie. Environmental Protection Agency, Army Corp of Engineers) are involved in your school's fire damage or debris clean-up, please defer to their recommendations.

- If indoor spaces or classroom furniture, walls or flooring have been contaminated by soot or ash it is recommended they are thoroughly cleaned.
- Wear PPE, including safety goggles and an N95 or P100 respirator, to protect your eyes and lungs from irritation by smoke and ash. Additionally, dress in long-sleeved shirts, long pants, close toe shoes and socks to minimize skin contact.
- Use a mild soap or detergent or mix 4 to 6 tbsp. of tri-sodium phosphate with 1 cup household cleaner or chlorine bleach to every gallon of warm water. Wash walls one small area at a time, starting from the floor up to prevent streaking. Immediately, rinse with clear water. Wash ceilings last.
- A final rinse of warm water can remove any remaining residue. Please allow classroom surfaces to dry completely prior to turning on HVAC system to prevent re-contamination.

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References:

ASHRAE: Planning Framework for Protecting Commercial Building Occupants from Smoke During Wildfires Events:

<https://www.ashrae.org/File%20Library/Technical%20Resources/COVID-19/Planning-Framework-for-Protecting-Commercial-Building-Occupants-from-Smoke-During-Wildfire-Events.pdf>

EPA.gov: EPA Create a Clean Room to Protect Indoor Air Quality During a Wildfire:

<https://www.epa.gov/emergencies-iaq/create-clean-room-protect-indoor-air-quality-during-wildfire>

CDPH Center for Preparedness and Response (CPR):

<https://www.cdph.ca.gov/Programs/EPO/Pages/Wildfire%20Pages/Safe-Cleanup-of-Ash.aspx>

Red Cross: Cleaning Up After a Fire [https://www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/fire/cleaning-up-after-](https://www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/fire/cleaning-up-after-fire.html#:~:text=To%20remove%20soot%20and%20smoke,warm%20water%20and%20dry%20thoroughly)

[fire.html#:~:text=To%20remove%20soot%20and%20smoke,warm%20water%20and%20dry%20thoroughly](https://www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/fire/cleaning-up-after-fire.html#:~:text=To%20remove%20soot%20and%20smoke,warm%20water%20and%20dry%20thoroughly)