

FACTSHEET

# WORKER PROTECTION FROM WILDFIRE SMOKE

CAL/OSHA WILDFIRE SMOKE STANDARD 2021



Valley Fire moving downhill into Middletown, CA. during a high school girls soccer match between the Middletown Lady Mustangs and the St. Bernard's Knights from Eureka, CA.

Photo courtesy of Wikimedia Commons: [commons.wikimedia.org/wiki/File:Valley\\_Fire\\_9-12-2015.JPG](https://commons.wikimedia.org/wiki/File:Valley_Fire_9-12-2015.JPG).

## SCHOOL ACTION FOR SAFETY AND HEALTH

Labor Occupational Health Program, University of California, Berkeley  
Commission on Health and Safety and Workers' Compensation

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California's recent wildfire seasons have confirmed fears of worsening fire conditions that have become a year-round threat. Increasingly, workers in the path of wildfire smoke have been the focus of concern given the health impacts of exposure. In December 2018, worker advocates in the state urged the California Division of Occupational Safety and Health (Cal/OSHA) to take measures to address this growing worker health threat.

The Occupational Safety and Health Standards Board voted to adopt an emergency temporary standard to protect workers, including school employees from exposure to wildfire smoke. The temporary standard went into effect on July 29, 2019 and became a permanent standard with minor changes in February 2021. The Standards Board's website has the documents from the adoption of Cal/OSHA's Protection from Wildfire Smoke standard: [dir.ca.gov/OSHSB/Protection-from-Wildfire-Smoke.html](http://dir.ca.gov/OSHSB/Protection-from-Wildfire-Smoke.html).

### How does wildfire smoke affect health?

Wildfire smoke includes chemicals, gases and tiny particles that can travel through the air over long distances and affect the health of workers impacted by the smoke. These particles are made up of whatever is being burned – not only plants and vegetation, but also remnants of residential or commercial structures, vehicles, industrial or household chemicals, and other unknown materials. Many of these particles are so small they are invisible to the naked eye. Individuals may experience health symptoms if they breathe in these smoke particles.

#### These symptoms can include:

- Irritation of the eyes, nose, and throat
- Difficulty breathing
- Asthma attacks
- Chest pain
- Persistent cough, phlegm, and wheezing

Particulate matter can also cause more serious long-term health problems, such as reduced lung function, chronic bronchitis, worsening of asthma, heart failure, and early death.

Adults over 65 years of age, children, and individuals with pre-existing health conditions are at higher risk for wildfire smoke-related health problems.

#### Definitions

##### AQI

**Air Quality Index.** An index that indicates air pollution concentration levels and associated health concerns.

- Real-time AQI for any location in the U.S. is available at: [airnow.gov](http://airnow.gov)

##### PM2.5

**Particles (or “particulate matter”)** suspended in the air with a diameter of 2.5 micrometers or less — about 30 times smaller than the thickness of human hair. The small size of PM2.5 particles allows them to reach deep into the lungs and even enter the bloodstream.

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### When are employers required to take steps to protect workers?

The California protection from wildfire smoke standard is in effect when the current AQI (air quality index) for PM2.5 at the worksite is 151 or higher due to wildfire smoke. An AQI of 151 indicates that the air is “unhealthy” for everyone to breathe. Employers must monitor air quality using publicly accessible forecasts and current AQI data for PM2.5 or by directly measuring PM2.5 levels at the school facility/ campus or worksite with their own device according to Cal/OSHA’s standard.

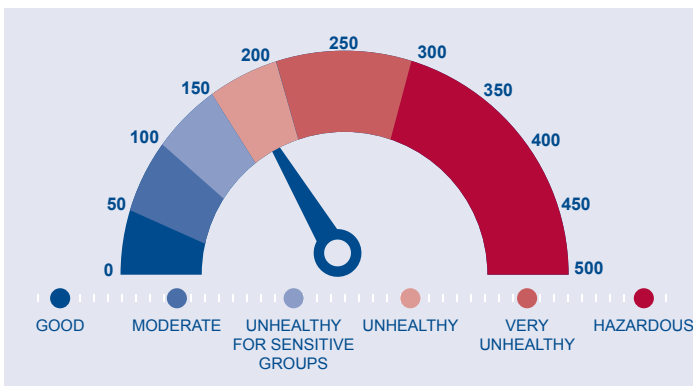


Photo: Cowaymega

### Who does the wildfire smoke standard apply to?

The wildfire smoke standard applies to both outdoor and indoor school employees and other workers who may be exposed to a current AQI for PM2.5 of 151 for more than one hour per day, even if they are not directly impacted by fires. This may include:

- School Personnel
- Construction Workers
- Agricultural Workers
- Utility Workers
- Landscapers and Gardeners
- Day Laborers and Domestic Workers
- Warehouse Workers

### What protections does the emergency standard provide?

**When the AQI for PM2.5 is 151 or higher, employers at school districts and other work sites are required to:**

- Communicate with school employees about current AQI PM2.5 at the school or worksite and the potential symptoms of wildfire smoke exposure.
- Provide training on the health effects of wildfire smoke, protections available, and procedures for obtaining medical treatment.
- Reduce school employees’ exposure to wildfire smoke by providing enclosed building or vehicles with filtered air, relocating work where the AQI or PM2.5 is lower than 151, changing work schedules, lessening work intensity, and/or accommodating longer rest breaks.
- Provide respirators (NIOSH-approved N95 filtering facepiece respirators) and encourage their voluntary use.
- As currently written, the wildfire smoke standard requires respirator use along with mandatory fit testing for school employees if the AQI for PM2.5 exceeds 500. (Respirators must be used in accordance with Respiratory Protection standard 5144: [dir.ca.gov/title8/5144.html](http://dir.ca.gov/title8/5144.html)). For more information visit: [dir.ca.gov/dosh/dosh\\_publications/respiratory-protection-fs.pdf](http://dir.ca.gov/dosh/dosh_publications/respiratory-protection-fs.pdf)

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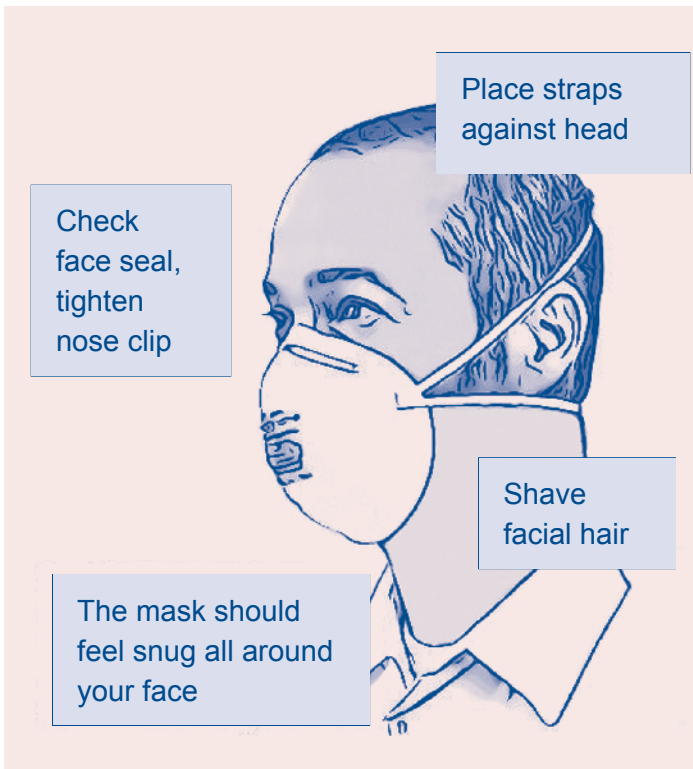


Photo: [dir.ca.gov](http://dir.ca.gov). Image shows proper fitting of respirator. Image for demonstration purposes only, proper training is required, per Cal/OSHA Title 8, Section 5144. See: [dir.ca.gov/title8/5144.html](http://dir.ca.gov/title8/5144.html)



### Next Steps

- Cal/OSHA's Section 5141.1, Protection from Wildfire Smoke, protects outdoor school employees from wildfire smoke. For more information visit: [dir.ca.gov/title8/5141\\_1.html](http://dir.ca.gov/title8/5141_1.html).
- The hazards don't end when the smoke clears. For safety during the cleanup and rebuilding after wildfires visit: [dir.ca.gov/dosh/worker-health-and-safety-in-wildfire-regions.html](http://dir.ca.gov/dosh/worker-health-and-safety-in-wildfire-regions.html).

To download this and other LOSH factsheets, visit: [losh.ucla.edu/resources-2/fact-sheets/](http://losh.ucla.edu/resources-2/fact-sheets/)

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