

PROTECTION FROM WILDFIRE SMOKE

Mandatory
Training for
Employees

UCANR Risk & Safety
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The health effects of wildfire smoke



Although there are many hazardous chemicals in wildfire smoke, the main harmful pollutant for people who are not very close to the fire is “particulate matter,” the tiny particles suspended in the air.



Particulate matter can irritate the lungs and cause persistent coughing, phlegm, wheezing, or difficulty breathing. Particulate matter can also cause more serious problems, such as reduced lung function, bronchitis, worsening of asthma, heart failure, and early death.



People over 65 and people who already have heart and lung problems are the most likely to suffer from serious health effects.



The smallest—and usually the most harmful—particulate matter is called PM2.5 because it has a diameter of 2.5 micrometers or smaller.

The health effects of wildfire smoke

The following people are at greater risk of the effects from unhealthy air from wildfire smoke:

- people with **heart or lung disease**, such as heart failure, angina, ischemic heart disease, chronic obstructive pulmonary disease, emphysema or asthma.
- **older adults**, who are more likely to have heart or lung disease than younger people.
- **children, including teenagers**, because their respiratory systems are still developing, they breathe more air (and air pollution) per pound of body weight than adults, they're more likely to be active outdoors, and they're more likely to have asthma.
- a person with **diabetes**, because they are more likely to have underlying cardiovascular disease.
- **pregnant women**, because there could be potential health effects for both the mother and the developing fetus.

Source: <https://www.airnow.gov/index.cfm?action=smoke.index>

The right to obtain medical treatment



Employers shall allow employees who show signs of injury or illness due to wildfire smoke exposure to seek medical treatment and may not punish affected employees for seeking such treatment.



Employers shall also have effective provisions made in advance for prompt medical treatment of employees in the event of serious injury or illness caused by wildfire smoke exposure.



UC ANR employees should report any workplace-caused injury or illness (including injury or illness related to work-related wildfire smoke exposure) to their supervisor and via the reporting process described online at:

<http://ucanr.edu/injury>

How employees can obtain the current AQI for PM_{2.5}

- Various government agencies monitor the air at locations throughout California and report the current AQI for those places. The AQI is a measurement of how polluted the air is. An AQI over 100 is unhealthy for sensitive people and an AQI over 150 is unhealthy for everyone.
- Although there are AQIs for several pollutants, Title 8, section 5141.1 about wildfire smoke only uses the AQI for PM_{2.5}.
- The easiest way to find the current and forecasted AQI for PM_{2.5} is to go to www.AirNow.gov and enter the zip code of the location where you will be working. The current AQI is also available from the U.S. Forest Service at <https://tools.airfire.org/> or a local air district, which can be located at www.arb.ca.gov/capcoa/dismap.htm. Employees who do not have access to the internet can contact their employer for the current AQI. The EPA website www.enviroflash.info can transmit daily and forecasted AQIs by text or email for particular cities or zip codes.

The requirements in Title 8, Sec. 5141.1 about wildfire smoke

- If employees may be exposed to wildfire smoke, then the employer is required to find out the current AQI applicable to the worksite. If the current AQI for PM2.5 is 151 or more, the employer is required to:
 - 1) Check the current AQI before and periodically during each shift.
 - 2) Provide training to employees.
 - 3) Lower employee exposures.
 - 4) Provide respirators and encourage their use.

The employer's communication system

- Employers shall alert employees when the air quality is harmful and what protective measures are available to employees.
- Employers shall encourage employees to inform their employers if they notice the air quality is getting worse, or if they are suffering from any symptoms due to the air quality, without fear of reprisal.
- The employer's communication system is: _____

UCANR Risk & Safety recommends using email to communicate with employees. The County Director, REC Director, or other site manager should appoint an employee to monitor AQI levels and provide reports to other employees. In some cases, the location Director may choose to use other methods of communication as appropriate for their office/facility.

The employer's methods to protect employees from wildfire smoke

- Employers shall take action to protect employees from PM2.5 when the current AQI for PM2.5 is 151 or greater. Examples of protective methods include:
 - 1) Locating work in enclosed structures or vehicles where the air is filtered.
 - 2) Changing procedures such as moving workers to a place with a lower current AQI for PM2.5.
 - 3) Reducing work time in areas with unfiltered air.
 - 4) Increasing rest time and frequency, and providing a rest area with filtered air.
 - 5) Reducing the physical intensity of the work to help lower the breathing and heart rates.

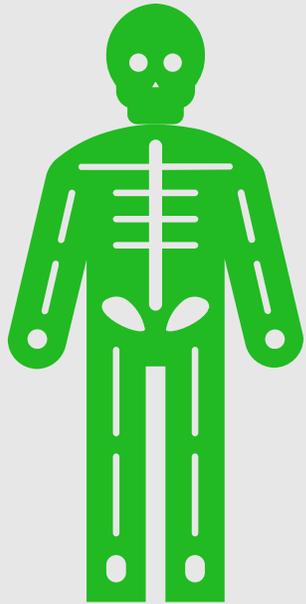
The employer's methods to protect employees from wildfire smoke

- The employer's control system at this worksite is: _____

To the extent practical, during periods of unhealthy air quality, UC ANR locations will postpone or limit outdoor work activities. This will include moving work indoors whenever possible, and reducing the duration and physical intensity of outdoor work.

If available, supervisors should consider allowing employees to work at alternate locations that have better air quality.

The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke



- Respirators can be an effective way to protect employee health by reducing exposure to wildfire smoke, when they are properly selected and worn. Respirator use can be beneficial even when the AQI for PM2.5 is less than 151, to provide additional protection.
- When the current AQI for PM2.5 is 151 or greater, employers shall provide their workers with proper respirators for voluntary use. If the current AQI is greater than 500, respirator use is required.
- A respirator should be used properly and kept clean.

The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke

- The following precautions shall be taken:

- 1) Employers shall select respirators **certified for protection** against the specific air contaminants at the workplace. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Center for Disease Control and Prevention certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will list what the respirator is designed for (particulates, for example).

Surgical masks or items worn over the nose and mouth such as scarves, T-shirts, and bandannas **will not provide protection** against wildfire smoke. An N95 filtering facepiece respirator, shown in the image here, is the minimum level of protection for wildfire smoke.



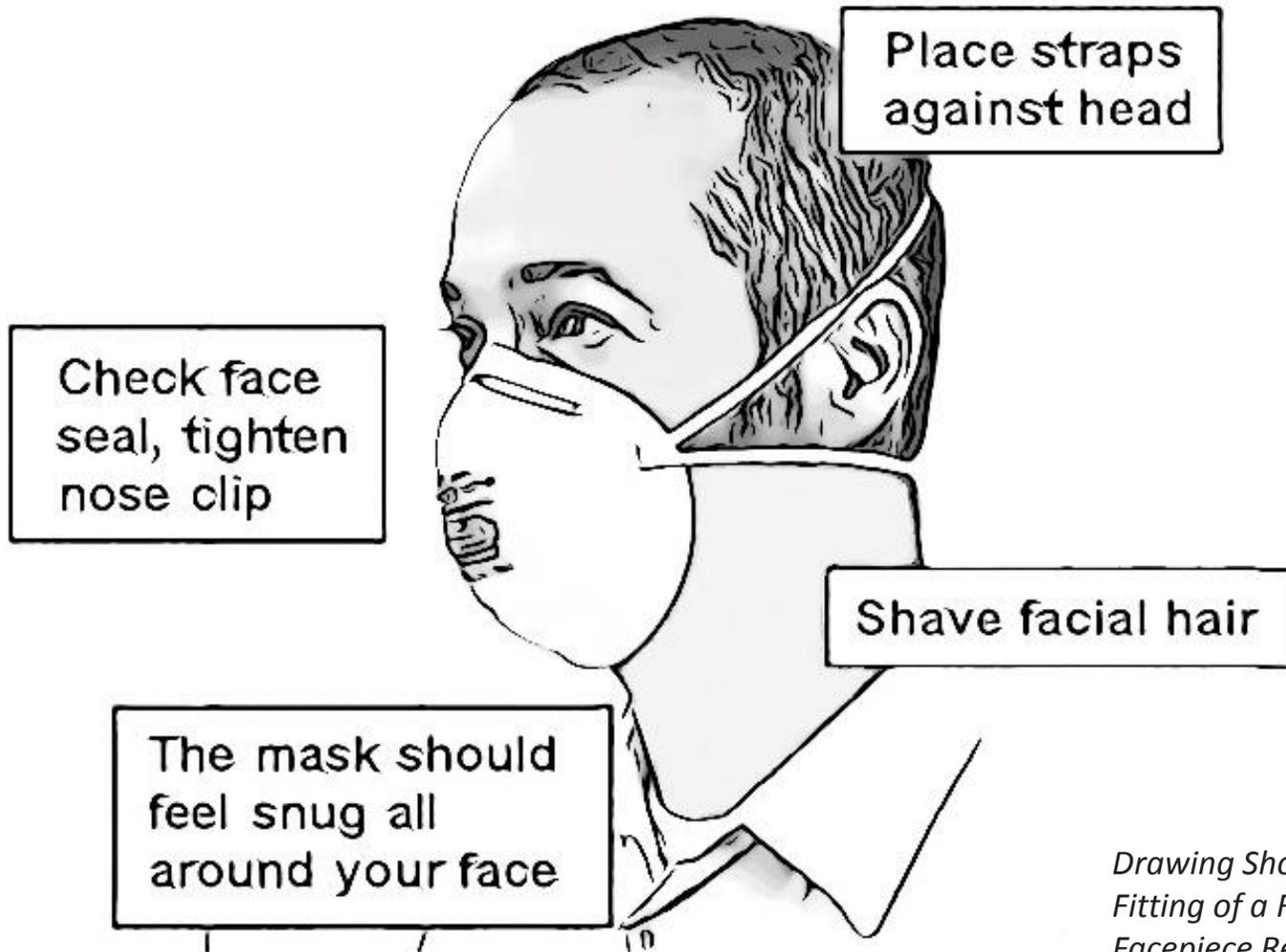
The importance, limitations, and benefits of using a respirator when exposed to wildfire smoke

- The following precautions shall be taken (continued):
 - 2) **Read and follow** the manufacturer's instructions on the respirator's use, maintenance, cleaning and care, along with any warnings regarding the respirator's limitations. The manufacturer's instructions for medical evaluations, fit testing, and shaving should also be followed, although doing so is not required by Title 8, section 5141.1 for voluntary use of filtering facepiece respirators.
 - 3) Do not wear respirators in areas where the air contains contaminants for which the respirator is not designed. A respirator designed to filter particles **will not protect employees against gases or vapors**, and it will not supply oxygen.
 - 4) Employees should **keep track of their respirator** so that they do not mistakenly use someone else's respirator.
 - 5) Employees who have a heart or lung problem should **ask their doctor** before using a respirator.

How to properly put on, use, and maintain the respirators provided by the employer.

- To get the most protection from a respirator, there must be a **tight seal** around the face. A respirator will provide much less protection if facial hair interferes with the seal. Loose-fitting powered air purifying respirators may be worn by people with facial hair since they do not have seals that are affected by facial hair.
- The proper way to put on a respirator **depends on the type and model** of the respirator.
- For those who use an N95 or other filtering facepiece respirator mask that is made of filter material:
 - 1) Place the mask over the nose and under the chin, with one strap placed below the ears and one strap above.
 - 2) Pinch the metal part (if there is one) of the respirator over the top of the nose so it fits securely.

How to properly put on, use, and maintain the respirator provided by the employer.



Drawing Showing Proper Fitting of a Filtering Facepiece Respirator (shaving is not required for voluntary respirator use)

How to properly put on, use, and maintain the respirators provided by the employer.

- For a respirator that relies on a tight seal to the face, **check how well it seals** to the face by following the manufacturer's instructions for user seal checks. Adjust the respirator if air leaks between the seal and the face. The more air leaks under the seal, the less protection the user receives.
- Respirator filters should be **replaced if they get damaged, deformed, dirty, or difficult to breathe** through. Filtering facepiece respirators are disposable respirators that cannot be cleaned or disinfected. A best practice is to replace filtering facepiece respirators at the beginning of each shift.
- If you have **symptoms** such as difficulty breathing, dizziness, or nausea, go to an area with cleaner air, take off the respirator, and get medical help.

How to properly put on, use, and maintain the respirators provided by the employer.

1) UCANR Employees should complete the online Voluntary N95 Respirator training:

<https://ucanr.edu/survey/survey.cfm?surveynumber=26137>

2) Register your respirator use with UC ANR Risk & Safety:

<https://ucanr.edu/survey/survey.cfm?surveynumber=26140>

For more information

- Visit UC ANR Protection From Wildfire Smoke webpage:
http://safety.ucanr.edu/Programs/Respiratory_Protection_Program/WildfireSmoke/
- Contact ANR Risk & Safety Services:
 - ehs@ucanr.edu or <http://ucanr.edu/askehs>
 - Malendia Maccree 530-750-1364 /David Alamillo 530-750-1261 /Brian Oatman 530-750-1264
- Cal OSHA webpage: <https://www.dir.ca.gov/dosh/wildfire/Worker-Protection-from-Wildfire-Smoke.html>
- Text of regulation:
<https://www.dir.ca.gov/oshsb/documents/Protection-from-Wildfire-Smoke-Emergency-txtbrdconsider.pdf>
- Spanish language resources:
 - Summary: <http://ucanr.edu/sites/safety/files/308915.pdf>
 - Regulation: <https://www.dir.ca.gov/dosh/doshreg/Protection-from-Wildfire-Smoke/Spanish/Protection-from-Wildfire-Smoke-Emergency-proptxt-spanish.pdf>