Chapter 296-62-085 WAC

Wildfire Smoke

Table of contents

WAC 296-62-08510 Purpose and scope.

(1) This standard applies to workplaces where the employer should reasonably anticipate that employees may be exposed to wildfire smoke; and
(2) The following workplaces and operations are exempt from this section:
  (a) Enclosed buildings or structures in which the employer ensures that windows, doors, bays, and other exterior openings are kept closed, except when it is necessary to open doors to enter and exit.
  (b) Enclosed vehicles in which the air is filtered by a cabin air filter and the employer ensures that windows, doors, and other openings are kept closed except when it is necessary to open doors to enter or exit.
  (c) Employees exposed to a concentration of PM2.5 of 20.5µg/m^3 (Washington Air Quality Advisory 101, Air Quality Index 69) or more for a total of one hour or less during a shift.
  (d) Firefighters engaged in wildland firefighting.

Note: Requirements for workers performing wildland firefighting can be found in Chapter 296-305 WAC.

WAC 296-62-08520 Definitions.

Current Air Quality Index (AQI). The method used by the U.S. Environmental Protection Agency (EPA) to report air quality on a real-time basis. It

represents data collected over time periods of varying length in order to reflect present conditions as accurately as possible.

Current Washington Air Quality Advisory (WAQA). The method used by the Washington State Department of Ecology to report air quality on a real-time basis. It represents data collected over time periods of varying length in order to reflect present conditions as accurately as possible.

NIOSH. The National Institute for Occupational Safety and Health of the U.S. Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

PM2.5. Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller. Measured in micrograms per cubic meter ($\mu g/m^3$).

Sensitive Groups. People with pre-existing health conditions and those who are sensitive to air pollution who are among those most likely to experience health problems from exposure to wildfire smoke. Examples of sensitive groups include:

- People with lung diseases such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema ,and those who smoke;
- People with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, colds, flu, or those with, or recovering from COVID-19;
- People with existing heart or circulatory problems, such as irregular heart beat, congestive heart failure, coronary artery disease, angina, and those who have had a heart attack or stroke;
- Children under 18 years old, and adults over age 65.
- Pregnant women;
- People with diabetes;
- People with other medical or health conditions which can be exacerbated by exposure to wildfire smoke as determined by a physician.

Wildfire Smoke. Emissions from fires in wildlands or in adjacent developed areas.

Wildlands. Sparsely populated geographical areas covered primarily by grass, brush, trees, crops, or combination thereof.

WAC 296-62-08530 Identification of harmful exposures.

The employer shall determine employee exposure to PM2.5 for worksites covered by this section before each shift and periodically thereafter, as needed to protect the health of the employee, by any of the following methods:

(1) Check PM2.5 forecasts and the current PM2.5 from any of the following: Washington Air Quality Advisory website, Air Quality WA mobile app, Washington Smoke Information website, U.S. EPA AirNow website, EPA AirNow

mobile app, U.S. Forest Service AirFire website, Local Clean Air Agency website; or

(2) Obtain PM2.5 forecasts and the current PM2.5 directly from the Department of Ecology, Local Clean Air Agency, U.S. EPA, EPA EnviroFlash.info, or local clean air agency by telephone, email, text, or other effective method; or

(3) Measure PM2.5 levels at the work location in accordance with Appendix A.

(4) If an index such as WAQA or AQI are used, the employer must use following table to find the equivalent WAQA or AQI for PM2.5.

PM2.5 in Micrograms per Cubic Meter (µg/m³)	***Washington Air Quality Advisory (WAQA)***	***Air Quality Index (AQI)***
20.5*µg/m³*	101	69

EXCEPTION: The employer does not have to determine employee exposure as required by this subsection if the employer assumes the current PM2.5 is more than 20.5µg/m³ (WAQA 101, AQI 69) and uses that assumption to comply with the requirements in WAC 296-62-085.

WAC 296-62-08540 Hazard communication.

For any worksite covered by this section, the employer must establish and implement a system for communicating wildfire smoke hazards in a form readily understandable by all affected employees, including provisions designed to encourage employees to inform the employer of wildfire smoke hazards at the worksite without fear of reprisal.

The system shall include effective procedures for:

(1) Informing employees of:
  (a) The current PM2.5 as identified in WAC 296-62-08530 when the PM2.5 is 20.5µg/m³ (WAQA 101, AQI 69) or more; and
  (b) Protective measures available to employees to reduce their wildfire smoke exposures.

(2) Encouraging employees to inform the employer of:
  (a) Worsening air quality; and
  (b) Any adverse symptoms that may be the result of wildfire smoke exposure such as asthma attacks, difficulty breathing, and chest pain.

(3) Include wildfire smoke in the written accident prevention program. At a minimum, the written program must include the information in Appendix B.

WAC 296-62-08550 Information and training.

The employer must provide all workers effective information and training regarding wildfire smoke before work that exposes the worker to PM2.5 levels of 20.5µg/m³ (WAQA 101, AQI 69) or more, and at least annually thereafter.

(1) Information and training must be provided in a manner and language readily understood by the workers.
(2) At a minimum, the training must include the information in Appendix B.
(3) Supervisor training. Prior to supervising employees performing work that exposes the worker to PM2.5 levels that are 20.5µg/m^3 (WAQA 101, AQI 69) or more, supervisors must have training on the information in Appendix B, and the following topics:
   (a) The procedures the supervisor must follow to implement the applicable provisions of WAC 296-62-085 Wildfire Smoke;
   (b) The procedures the supervisor must follow if an employee exhibits adverse symptoms of wildfire smoke exposure, including appropriate emergency response procedures; and
   (c) Procedures for moving or transporting employees to an emergency medical service provider, if necessary.

WAC 296-62-08560 Exposure symptom response.

(1) Employees displaying adverse symptoms of wildfire smoke exposure must be monitored to determine whether medical attention is necessary.
(2) Employers must 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.
(3) Employers must 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.

WAC 296-62-08570 Exposure controls.

(1) Engineering Controls.
   (a) The employer must use engineering controls to reduce employee PM2.5 exposure to less than 20.5µg/m^3 (WAQA 101, AQI 69) whenever feasible. Such controls include providing enclosed buildings, structures, or vehicles where the air is adequately filtered.
   (b) If engineering controls are not sufficient to reduce exposure to PM2.5 to less than 20.5µg/m^3 (WAQA 101, AQI 69), then the employer must reduce employee exposures as much as feasible.
(2) Administrative Controls.
   (a) Whenever engineering controls are not feasible or do not reduce employee exposures to PM2.5 to less than 20.5µg/m^3 (WAQA 101, AQI 69), the employer must implement administrative controls whenever feasible.
   (b) Administrative controls include:
      (i) Relocating work to a location with ambient air concentration of PM2.5 less than 20.5µg/m^3 (WAQA 101, AQI 69);
      (ii) Changing work schedules to a time where the ambient air concentration of PM2.5 is less than 20.5µg/m^3 (WAQA 101, AQI 69);
      (iii) Reducing work intensity;
      (iv) Providing additional rest periods.

(3) In emergencies, including rescue and evacuation, engineering and administrative controls in WAC 296-62-08570(1) and (2) are not required. Emergencies include utilities, communications, and medical operations, when such operations are directly aiding firefighting or emergency response.

WAC 296-62-08580 Respiratory Protection.

(1) Voluntary use respiratory protection.
   (a) Where the current PM2.5 is 20.5µg/m^3 (WAQA 101, AQI 69) or more, the employer must provide respirators at no cost to all employees for voluntary use in accordance with WAC 296-842 Safety Standards for Respirators, and encourage employees to use respirators.
   (b) Respirators shall be NIOSH-approved devices that effectively protect the wearers from inhalation of PM2.5, such as N95 filtering facepiece respirators.
   (c) If NIOSH-approved respirators are not readily available, employers may instead provide KN95 filtering facepiece respirators.
   (d) Respirators shall be cleaned, stored, maintained, and replaced so that they do not present a health hazard to users.
   (e) Employers shall use Appendix B of this section in lieu of the advisory information in Table 2 of WAC 296-842 for training regarding voluntary use of respirators for wildfire smoke.

NOTE: For voluntary use of filtering facepiece respirators, such as N95 respirators, some of the requirements of WAC 296-842 Safety Standards for Respirators, do not apply, such as fit testing and medical evaluations.

Appendix A: Protection from Wildfire Smoke Measuring PM2.5 Levels at the Worksite (Mandatory if an Employer Monitors with a Direct Reading Instrument).

(1) An employer may use a direct-reading particulate monitor to identify harmful exposures as required by WAC 296-62-08530, if the employer can demonstrate that it has complied with this appendix and selected a monitor that:
   (a) Does not underestimate employee exposures to wildfire smoke; or
   (b) May underestimate wildfire smoke exposures, but the employer has obtained information on the possible error of the monitor from the manufacturer or other published literature and has accounted for the error of the monitor when determining exposures to PM2.5 to ensure that employee exposure levels are not underestimated.
(2) The monitor shall be designed and manufactured to measure the concentration of airborne particle sizes ranging from an aerodynamic diameter of 0.1 micrometers up to and including 2.5 micrometers. The employer may use a monitor that measures a particle size range beyond these limits, if the employer treats the results as the PM2.5 levels.
(3) The employer shall ensure that the monitor it uses is calibrated, maintained, and used, including the use of necessary accessories, in

accordance with the manufacturer's instructions for accurately measuring PM2.5 concentrations.

(4) The person supervising, directing, or evaluating workplace monitoring for PM2.5 shall have the training or experience necessary to apply this section and to ensure the correct use of the monitor and the interpretation of the results, so that exposures are not underestimated.

Appendix B: Protection from Wildfire Smoke Information to Be Provided to Employees (Mandatory).

(1) 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.

Sensitive Groups. People with pre-existing health conditions and those who are sensitive to air pollution who are among those most likely to experience health problems from exposure to wildfire smoke. Examples of sensitive groups include:

- People with lung diseases such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema ,and those who smoke;
- People with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, colds, flu, or those with, or recovering from COVID-19;
- People with existing heart or circulatory problems, such as irregular heart beat, congestive heart failure, coronary artery disease, angina, and those who have had a heart attack or stroke;
- Children under 18 years old, and adults over age 65.
- Pregnant women;
- People with diabetes;
- People with other medical or health conditions which can be exacerbated by exposure to wildfire smoke as determined by a physician.

(2) The right to obtain medical treatment without fear of reprisal.

Employers must 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 must 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.

(3) How employees can obtain the current concentration of PM2.5 in the air.

Various government agencies monitor the air at locations throughout Washington and report the current concentration of PM2.5 for those places. Both the Washington Air Quality Advisory (WAQA) and the Air Quality Index (AQI) use the air quality data from these regulatory monitors. While both the WAQA and AQI use the same data to provide an indicator of how unhealthy the current air quality is, the WAQA uses lower thresholds for reporting the health hazard.

Although the government monitoring stations may measure several pollutants, this chapter only uses PM2.5.

The easiest way to find the current and forecasted PM2.5 is to go to enviwa.ecology.wa.gov and find the nearest sensor on the map, or www.AirNow.gov and enter the zip code of the location where you will be working. The current PM2.5 is also available from the U.S. Forest Service at tools.airfire.org. Employees who do not have access to the internet can contact their employer for the current PM2.5. The EPA website www.enviroflash.info can transmit daily and forecasted air quality by text or email for particular cities or zip codes.

If you choose to use an index such as WAQA or AQI, use following table to find the equivalent WAQA or AQI for PM2.5.

PM2.5 in Micrograms per Cubic Meter ($\mu g/m^3$)	***Washington Air Quality Advisory (WAQA)***	***Air Quality Index (AQI)***
20.5$\mu g/m^3$	101	69

(4) The requirements of WAC 296-62-085 wildfire smoke rule.

If employees may be exposed to wildfire smoke, then the employer is required to:

(a) Check the current PM2.5 before and periodically during each shift.
(b) Provide training to employees.
(c) Implement a two-way communication system.
(d) If feasible, provide engineering and administrative controls when the current PM2.5 is 20.5$\mu g/m^3$ (WAQA 101, AQI 69) or more.
(e) Provide respirators and encourage their use when the current PM2.5 is 20.5$\mu g/m^3$ (WAQA 101, AQI 69) or more.

Employers shall alert employees when the air quality is 20.5$\mu g/m^3$ (WAQA 101, AQI 69) or more, 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: _____

_____

_____

(5) The employer's methods to protect employees from wildfire smoke.

Employers must take action to protect employees from wildfire smoke when the current PM2.5 is 20.5$\mu g/m^3$ (WAQA 101, AQI 69) or more. Examples of protective methods include:

(a) Locating work in enclosed structures or vehicles where the air is filtered.
(b) Changing procedures such as moving workers to a place with a lower PM2.5.
(c) Reducing work time in areas with unfiltered air.
(d) Increasing rest time and frequency, and providing a rest area with filtered air.
(e) Reducing the physical intensity of the work to help lower the breathing and heart rates.

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

_____

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(6) 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 PM2.5 is less than 20.5$\mu g/m^3$, to provide additional protection.

When the current PM2.5 is 20.5$\mu g/m^3$ (WAQA 101, AQI 69) or more, employers must make proper respirators available to workers for voluntary use.

A respirator should be used properly and kept clean.

The following precautions must be taken:

(a) 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). KN95 respirators may also be used if adequate supply of NIOSH approved respirators is not available.

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 below, is the minimum level of protection for wildfire smoke.

(b) 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 to ensure the best protection against wildfire smoke, although doing so is not required for voluntary use of filtering facepiece respirators.

(c) 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 workers against gases or vapors, and it will not supply oxygen.

(d) Employees should keep track of their respirator so that they do not mistakenly use someone else's respirator.

(e) Employees who have a heart or lung problem should ask their doctor before using a respirator.

(7) 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:

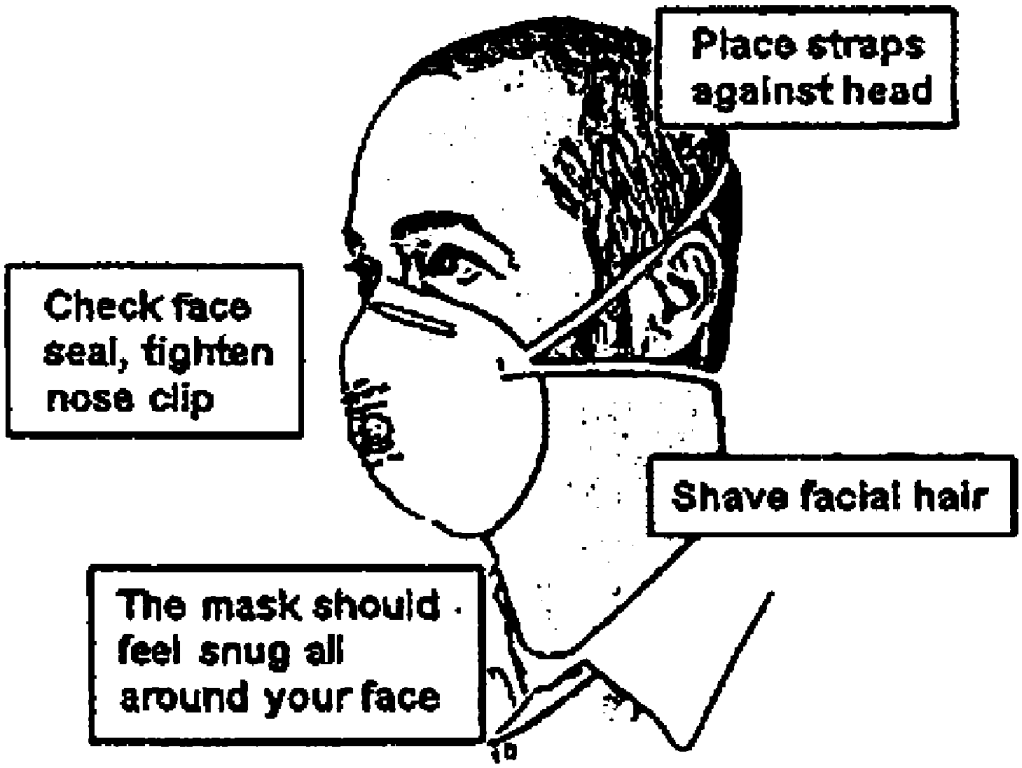
(a) Place the mask over the nose and under the chin, with one strap placed below the ears and one strap above.

(b) Pinch the metal part (if there is one) of the respirator over the top of the nose so it fits securely.

(c) Perform a seal check:

(i) Cover the respirator with both hands and exhale. If air leaks where the respirator seals against the face, readjust the respirator and nosepiece and try again. When a proper fit is achieved, the respirator should bulge from the face and not leak around the seal.

(ii) Cover the respirator with both hands and inhale. If air leaks where the respirator seals against the face, readjust the respirator and nosepiece and try again. When a proper fit is achieved, the respirator should collapse slightly and not leak around the seal.



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

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.