



Natural Disasters and Severe Weather



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Public Health Strategies to Reduce Exposure to Wildfire Smoke during the COVID-19 Pandemic



This document provides information about wildfire preparedness and response during the ongoing COVID-19 pandemic. It is intended for use by public health, environmental health, and air quality personnel in federal, state, territorial, local, and tribal jurisdictions in the United States. It should be used in conjunction with the 2019 revision of [Wildfire Smoke: A Guide for Public Health Officials](#) [↗](#), [Wildfire Smoke and COVID-19: Frequently Asked Questions and Resources for Air Resource Advisors and Other Environmental Health Professionals](#), [CDC's COVID-19 information](#), and other existing guidance and resources.

Background

[Wildfire Smoke: A Guide for Public Health Officials](#) [↗](#) is a resource document published in 2019 to help state, territorial, local, and tribal public health officials prepare for wildfire smoke events, take measures to protect the public when wildfire smoke is present, and communicate with the public about wildfire smoke and health. *Wildfire Smoke: A Guide for Public Health Officials* (hereafter referred to as the *Wildfire Guide*) provides evidence-based information about the health effects of wildfire smoke, air quality impacts of wildfire smoke, and strategies to reduce wildfire smoke exposure; tools to communicate air quality conditions during wildfire smoke events; and public health actions that can be taken before, during, and after wildfires.

The information in the *Wildfire Guide* remains accurate. This document supports and extends the information in the *Wildfire Guide* by providing additional information about the risk of wildfire smoke during the COVID-19 pandemic. It also describes alternatives to several specific public health actions described in the *Wildfire Guide* that public health officials might be unable to implement during the COVID-19 pandemic.


Additional Populations at Risk of Health Effects of Wildfire Smoke during COVID-19

The Wildfire Guide describes populations at increased risk of experiencing health effects because of wildfire smoke exposure. These at-risk populations include children, pregnant women, older adults, individuals with existing cardiovascular and respiratory disease, individuals living in areas of lower socioeconomic status, and outdoor workers.

During the COVID-19 pandemic, other populations might also be at risk of health effects from wildfire smoke due to the COVID-19 pandemic. Public health officials who issue messages for populations at risk of health effects from wildfire smoke should also issue messages for other [populations that are advised to take extra precautions](#) during the COVID-19 pandemic, including those who are at higher risk for severe illness from COVID-19.

Public Health Actions to Reduce Exposure to Wildfire Smoke during COVID-19


The Wildfire Guide describes specific actions that members of the public can take when wildfire smoke renders a community's air quality unhealthy:

- Creating a [clean room](#) , with filtered air, at home
- Limiting time spent outdoors
- Sheltering in a cleaner air shelter or cleaner air space if the indoor air quality at home cannot be kept sufficiently clean
- Wearing a fit-tested, NIOSH-approved N95 or P100 respirator (for individuals who must spend time outdoors)



These strategies might need to be modified during the COVID-19 pandemic.

Creating Clean Rooms at Home

During the COVID-19 pandemic, wildfire preparedness messages to the public should emphasize the importance of creating a clean room at home. Effective home clean rooms are a practical way to both reduce smoke exposure and maintain physical distancing by staying at home instead of sheltering in cleaner air shelter or cleaner air spaces.

[Creating a clean room at home](#)  is one way to reduce exposure in areas where people have the potential to be affected by wildfire smoke and is practical when people are advised to stay at home during the COVID-19 pandemic. Anyone can benefit from creating a clean room, but it is especially important for people with health conditions that might increase their risk of illness or injury effects after wildfire smoke exposure. Clean rooms at home are also recommended for people who must work outside, so they can access a space with clean air while indoors at home after work. The following resources provide information for public health officials and the public about creating a clean room at home:

- [Air Cleaners and Air Filters in the Home](#) 
- [Create a Clean Room to Protect Indoor Air Quality During a Wildfire](#) 
- [Wildfire and Indoor Air Quality](#) 
- [Wildfire Smoke Factsheet: Indoor Air Filtration](#)  [PDF-131 KB] 

Public health, environmental health, and air quality officials can assess the risks of wildfires and wildfire smoke in their area and the need for clear and repeated messages about creating clean rooms at home using the [National Interagency Fire Center's National Wildland Significant Fire Potential Outlook](#)  and the [National Wildfire Coordinating Group's InciWeb - Incident Information System](#) . Public health officials who issue messages about staying indoors and creating a clean room at home to reduce wildfire smoke exposure should also evaluate outdoor air quality, the severity of the smoke exposure, and weather conditions, such as extreme heat. Their public health messages should account for these and other conditions that affect people's health and safety during wildfires.

During evacuations and other situations in which creating a clean room at home is not possible, public health officials must consider the impact of COVID-19 and precautions to slow the spread of COVID-19 in other indoor spaces, including in cleaner air shelters and cleaner air spaces where people might seek refuge from wildfire smoke. [CDC's interim guidance for cleaner air shelters and cleaner air spaces](#) describes several modifications to be considered, including encouraging the use of well-

fitting [masks](#) for everyone age 2 or older, implementing screening and temperature checks, partitioning spaces to create at least six feet of [physical distance](#) between household members (or groups of people), and following cleaning and disinfecting guidelines for community facilities.

Limiting Time Spent Outdoors

To reduce exposure to wildfire smoke, people living in areas with wildfire smoke should limit their time spent outdoors. For example, outdoor work tasks and activities should be rescheduled to a time when air quality improves.

If outdoor tasks and activities cannot be rescheduled and must be conducted when air quality is poor, it is recommended that individuals reduce smoke inhalation by:

- Limiting the time spent outdoors by only performing essential activities
- Taking frequent breaks indoors in places where the air is clean, especially during periods with high outdoor levels of wildfire smoke

EPA's [Air Quality Index](#) (AQI) forecasts provide information about local air quality so that outdoor workers and others can plan to work outside when air quality is expected to be better. For areas downwind of major fires, smoke outlooks generated by the Interagency Wildland Fire Air Quality Response Program's Air Resource Advisors can provide additional information about local air quality.

Wearing Particle-filtering Respirators

The Wildfire Guide advises public health officials to consider having a supply of [NIOSH-approved particle-filtering respirators](#) to distribute to the public. Properly fitting NIOSH-approved N95 respirators provide protection from wildfire smoke and those without exhalation valves can reduce the spread of COVID-19; however, they might be in short supply during the pandemic. N95 respirators with exhalation valves should not be worn to help prevent the person wearing the mask from spreading COVID-19 to others.





If NIOSH-approved N95 respirators without exhalation valves are in short supply and must be reserved for frontline workers, emergency responders, or other similar populations, public health officials will need to assess the severity of the potential outdoor wildfire smoke exposure, the level of community transmission of COVID-19, and the availability of other types of respirators to determine which should be recommended for outdoor workers and for the public. Public health officials have several factors to consider:



- **When used properly, all respirators and other masks recommended by CDC for COVID-19 can slow the spread of COVID-19.**
- **The protection provided by any mask varies** with the fit of the mask, the filtration characteristics (including manufacturing quality) of the material it is made of, and the condition (i.e., new vs. used) of the mask.
- **N95 respirators that fit properly and are used correctly can reasonably be expected to provide a greater level of reduction in the spread of COVID-19 than medical or other masks, although this has not been quantified.**
- **Loose fitting masks and respirators and N95 respirators with exhalation valves might allow unfiltered air exhaled by the wearer to escape.**
- **N95 respirators with exhalation valves provide protection from wildfire smoke and from COVID-19 for the individuals wearing them but might not prevent the spread of COVID-19 from the wearer to others.** During the COVID-19 pandemic, N95 respirators without exhalation valves are preferred.
- **Other than N95 respirators, [masks](#) that are used to slow the spread of COVID-19 offer little protection against the harmful air pollutants in wildfire smoke.** They might protect the wearer from the large particles in wildfire smoke; however, the level of respiratory protection is lower than that of NIOSH-approved N95 respirators, especially for small particles that can injure the lungs.
- **Cloth [masks](#) with filters inserted or sewn into them should not be relied upon to protect against wildfire smoke exposure** because the level of protection that they provide against particulate air pollutants is highly dependent on the fit of the mask and the characteristics of the filter.

CDC resources about [personal protective equipment](#), [NIOSH-approved particle-filtering respirators](#), [optimizing the supply of N95 respirators](#), and [alternatives to N95 respirators](#)  [PDF-220 KB] provide additional information about the use of particle-filtering respirators.

Improving Indoor Air Filtration


The following resources provide information for public health officials and the public about reducing wildfire smoke concentrations and improving air quality in homes and other indoor spaces during wildfire smoke events:


- [Air Cleaners and Air Filters in the Home](#) 
- [Create a Clean Room to Protect Indoor Air Quality During a Wildfire](#) 
- [Wildfires and Indoor Air Quality](#) 
- [Wildfire Smoke Factsheet: Indoor Air Filtration](#)  [PDF 131 KB] 

Air filters and portable air cleaners used to improve indoor air quality during wildfire smoke events should not be relied on to control the spread of COVID-19 in shared spaces. Special provisions are needed to control the spread of COVID-19 while reducing exposure to wildfire smoke in homes and other indoor spaces. If separate spaces in the same home or other buildings are used to separate individuals with and without COVID-19, it is important to ensure that air does not flow from the space sheltering individuals with COVID-19 to the space sheltering others who do not have COVID-19. In group settings, such as cleaner air shelters, it might be necessary to consult with a qualified heating, ventilation, and air-conditioning (HVAC) professional. The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) provides [guidance for building operations during the COVID-19 pandemic](#)  [PDF-78 KB] . This ASHRAE guidance includes information about indoor air filtration and ventilation strategies that can control the spread of COVID-19.

Public health officials in some areas provide information about assembling do-it-yourself (DIY) box fan filtration units (for example, as seen here: [DIY Box Fan Filter](#)) to reduce wildfire smoke concentrations and improve air quality indoors. The use of DIY box fan filtration units can be especially popular in communities where air conditioning is not used, including in places where air conditioning is rarely needed and communities of low-socioeconomic status where air conditioning and portable air cleaner use might be uncommon. Box fan filtration units should never be left unattended. While these units might improve indoor air quality, their impact on the spread of COVID-19 in shared spaces is unknown. Public health officials who provide information about DIY box fan filtration units should include in their messaging that there is no evidence that DIY box fan filtration units control the spread of COVID-19 and that people who use these units to improve indoor air quality should continue to take [precautions to slow the spread of COVID-19](#).

Planning for Wildfire Smoke and Extreme Heat

If a community is affected by both wildfire smoke and extreme heat, public health officials should advise the public to [shelter in air-conditioned places](#)  [PDF-2.7 MB], [adapt cooling centers to slow the spread of COVID-19](#), and provide clear and repeated alerts about the [warning signs and symptoms of heat-related illness](#). When members of a community are advised to shelter in air conditioned places and must leave their homes to do so, messages for the public should include information about [physical distancing](#) and other [everyday steps to prevent COVID-19](#).

Despite the importance of keeping windows and doors closed when wildfire smoke is present, during periods of extreme heat, public health officials and members of the public should pay attention to [temperature forecasts](#)  and know how to [stay safe in the heat](#). In addition, the decision to close doors and windows to prevent the entry of wildfire smoke must be balanced with the importance of opening doors and windows to improve indoor ventilation and limit person-to-person spread of COVID-19. [Individuals at elevated risk of heat-related illnesses](#) are also at risk of health effects from wildfire smoke exposure and should be advised to stay in air-conditioned places as much as possible.









Populations at Higher Risk of Heat-related Illnesses

- Athletes
- Individuals in communities of low socio-economic status
- Individuals with chronic health conditions
- Older adults
- Outdoor workers
- Young children


Resources

See <https://www.cdc.gov/coronavirus/2019-ncov/index.html> for more information about COVID-19.

For more information about wildfire and wildfire smoke preparedness and response, see:

- [Air Cleaners and Air Filters in the Home](#) 
- [COVID-19 Considerations for Cleaner Air Shelters and Cleaner Air Spaces to Protect the Public from Wildfire Smoke](#)
- [Create a Clean Room to Protect Indoor Air Quality During a Wildfire](#) 
- [Natural Disasters and Severe Weather: Wildfires](#)
- [Protect Yourself from Wildfire Smoke](#)
- [Wildfires and Indoor Air Quality](#) 
- [Wildfire Smoke and COVID-19: Frequently Asked Questions and Resources for Air Resource Advisors and Other Environmental Health Professionals](#)
- [Wildfire Smoke Factsheet: Prepare for Wildfire Season \[PDF-215 KB\]](#)  
- [Wildfire Smoke Factsheet: Indoor Air Filtration \[PDF-131 KB\]](#)  
- [Wildfire Smoke: A Guide for Public Health Officials](#) 

For more information about wildfires, wildfire smoke, and air quality, see:

- [AirNow.gov](#) 
- [Frequent Questions about Indoor Air and Coronavirus \(COVID-19\)](#) 
- [Interagency Wildland Fire Air Quality Response Program's Air Resource Advisors](#) 
- [National Interagency Fire Center's National Wildland Significant Fire Potential Outlook](#) 
- [National Wildfire Coordinating Group InciWeb – Incident Information System](#) 