Guidance & Best Practices for Employers to Protect Outdoor Workers from Extreme Weather Hazards in the Workplace

NEW YORK STATE DEPARTMENT OF LABOR | JUNE 2024

Table of Contents

Table of Contents 1

Background 2

Introduction to Core Principles 2

Protecting Outdoor Workers from Extreme Temperature Hazards 4

- **Heat** 4
- **Cold** 7

Protecting Outdoor Workers from Wildfire Smoke Hazards 10

Protecting Outdoor Workers from Extreme Precipitation Hazards 12

Appendix A: Example Trainings & Recommended Training Topics 16

- **Heat** 16
- **Cold** 16
- **Wildfire Smoke** 16
- **Precipitation** 17

Appendix B: Examples of Workload Intensities 19

Appendix C: Signs & Symptoms of Common Weather-Related Illnesses 21

- **Heat** 21
- **Cold** 22
- **Wildfire Smoke** 25

Appendix D: National Weather Service Definitions of Weather Watches, Warnings, and Advisories 27

Background

Extreme weather hazards in the workplace correlate to higher accident rates, illness, injuries, and deaths[1]. They can also have an impact on a business through increased workers compensation claims, insurance costs, worker use of workplace benefits like Paid Sick Leave, and overall decreased or diminished worker productivity.

To help protect outdoor workers' health, the Governor directed the New York State Department of Labor (NYSDOL) to develop and issue guidance and best practices for employers to support the safety of outdoor workers in extreme heat, poor air quality, and extreme precipitation. NYSDOL has also included guidance on extreme cold because most areas of the state see very low temperatures in the winter months. While the actions described in this document do not represent mandates upon employers, they are strategies that can help employers protect their outdoor workers during and after extreme weather.

This guidance is part of a larger New York State effort to protect New Yorkers from extreme weather hazards. The guidance builds on work from the New York State's Extreme Heat Action Plan Interim Recommendations Report, and the forthcoming Extreme Heat Action Plan. Likewise, NYSDOL has an existing On-site Consultation Program that can offer free safety and health consultations, exposure assessments, and training on heat-related hazards to private employers. NYSDOL's Public Employee Safety & Health (PESH) Bureau provides similar consultation services to public employers. PESH also adopted the Federal Occupational Safety & Health Administration (OSHA)'s Heat National Emphasis Program (NEP) on June 8, 2022. Other state agencies also help protect workers, and the general public, from extreme weather hazards: the NYS Department of Health (NYSDOH) performs research and provides resources on worker injuries and illnesses related to extreme weather, and the Division of Homeland Security and Emergency Services (DHSES) and the Department of Environmental Conservation (DEC) work to keep the public abreast of impending or current extreme weather events.

Stay Informed about Extreme Weather:
To receive updates from New York State agencies on current and impending local extreme weather hazards and other emergency communications, NYSDOL recommends that all New Yorkers, including employers, sign up to receive NY-Alert. During any extreme weather event, recommendations and orders from local emergency management officials should be followed.

Introduction to Core Principles

This guidance is divided into three high-risk weather hazards for outdoor workers: extreme temperatures, poor air quality caused by wildfire smoke, and extreme precipitation. Each section includes information on the hazards imposed by the weather condition, tools and tips for protecting workers, and the best ways to plan for worker impacts stemming from these extreme weather events. **The guidance for each weather hazard centers around three key protective principles[2]:**

[1] More information about the correlation between extreme weather and adverse worker health outcomes can be found in a variety of sources, including this scientific article from the National Institutes of Health and this report from the New York State Insurance Fund.

[2] The core principles are based on Federal OSHA, NIOSH, and CDC guidance, as well as existing workplace weather protections from states such as California, Oregon, and Washington.

1. **Rest & Relief,** including work/rest schedules and Personal Protective Equipment (PPE)
2. **Training**, so workers know the signs and symptoms of weather-related illnesses and how to work safely during extreme weather events[3]
3. **Planning & Preparedness**, including time for workers to acclimate to laboring in extreme temperatures, writing down illness prevention plans, and outlining emergency response procedures

In addition to these core principles, regardless of temperature or weather conditions, **the Centers for Disease Control and Prevention (CDC) recommends that employers provide each outdoor employee 32 ounces of drinking water per hour.**[4]

- The water should be provided at no cost to workers, available to workers at all times, potable[5], and as close to the worksite as practicable.
- Workers should be given sufficient time to consume the water.
- It is particularly important for workers to drink water regularly in the heat and cold (even when they do not feel thirsty).
- It is best practice for the water to be cool during hot weather and warm during cold weather.

These guidelines and best practices are intended for all public and private employers with **outdoor places of employment**. An outdoor place of employment is best thought of as one does not have a roof and enclosed sides. Any worker who spends more than 15 minutes in any 60-minute period outdoors is considered to be working in an outdoor workplace[6].

As a reminder, in a unionized workplace, employers should follow any collective bargaining agreement currently in place.

Finally, employers have a responsibility to protect their workers from known workplace hazards. This document is guidance with best practices for employers to follow. It is not enforceable. This guidance presents suggested procedures that may be applicable for work in extreme weather environments. That said, the employer has ultimate responsibility for assessing the work site and implementing adequate safety precautions. Under federal OSHA law and NYS Labor Law, employers are responsible for providing workplaces free of known safety and health hazards. The General Duty Clause in federal OSHA Law and NYS Labor Law entitles all workers to a safe workplace, and workers have the right to speak up about hazards without fear of retaliation. Private industry employers and workers covered under federal OSHA can visit https://www.osha.gov/workers for information on requirements under the law, how to file a confidential complaint, or to ask for an inspection. Public employers and employees can visit the NYS PESH webpage to learn more about hazardous working conditions and how to file a complaint.

[3] A list of example trainings and recommended training topics can be found in Appendix A. And a list of common weather-related illnesses can be found in Appendix C.
[4] This is best practice in Oregon and California. Also, Section 212 of Article 7 of the New York State Labor laws already requires that employers that employ paid farm laborers or food processing workers provide safe cool drinking water close to the work location and at no cost to the employees. The text of this law can be found here and more information from DOL on how to comply can be found here.
[5] Federal OSHA has required sanitation standards for potable water in the workplace. Information on such standards for general industry can be found here, and for the construction industry can be found here.
[6] This definition is based on best practice in Washington State.

Protecting Outdoor Workers from Extreme Temperature Hazards

Heat

According to a recent publication by federal OSHA, "employers have a legal and moral responsibility not to assign work in high heat conditions without protections in place for workers, where they could be literally worked to death." The following sections offers NYSDOL's guidance for some of the best ways to protect outdoor workers during hot weather.

How to Measure Heat Index

The heat index is what the temperature feels like to the human body when relative humidity is combined with the air temperature. It is the best way to assess the level of heat on a worksite. Employers can determine the current and forecast heat index using the OSHA-NIOSH Heat Safety Tool App.

In addition to the app, if an employer prefers, there are several other trustworthy resources to determine the current and forecast heat index, including, but not limited to: the National Weather Service's online calculator, NOAA's HeatRisk Map, and relatively inexpensive monitors that can measure the heat index on-site.

1. Rest & Relief

Employers can protect their workers by providing shade and paid rest when the heat index reaches 80 degrees Fahrenheit or above[7], and even more frequent rest breaks once the heat index exceeds 90 degrees.[8]

Shade Structure Best Practices

Employers should establish one or more shade areas when the heat index equals or exceeds 80 degrees Fahrenheit. Shade should:

- Be open to the air or have mechanical ventilation for cooling
- Be located as close as practicable to the areas where employees are working
- Accommodate at least the number of workers on recovery, rest, or meal periods so they have room to sit
- Be free of and protected from other potential hazards

Even when the heat index is below 80 degrees Fahrenheit, OSHA recommends that employers provide shade or erect the shade structure if requested to by an employee or if an employee shows any signs of heat-related illness. When an employee's access to shade is not possible in a particular situation — during high winds, for example – the employer should identify and implement cooling measures that provide equivalent protection (e.g. air-conditioned vehicle).

Work/Rest Schedules Best Practices

When the heat index reaches 90 degrees Fahrenheit or greater, employers can protect their workers by

[7] According to the National Weather Service, when the heat index is 80°F or higher, serious occupational heat-related illnesses and injuries become more frequent.

[8] Heat-related illness can happen at any temperature (it's based on many things such as a person's preexisting conditions, the type of work being done, and the amount of sun exposure). So, employers should pay attention for signs and symptoms of heat-related illness among workers *below* a heat index of 80°F too.

instituting standardized rest breaks. It is recommended that these schedules be written down. For example, best practice in Oregon is the following:

Recommended employer-specific rest break durations and intervals	
Heat Index Temperature:	Rest Break Durations:
90 or greater	10 minutes every two hours
100 or greater	15 minutes every hour
110 or greater	High risk of heat stress; consider rescheduling activities (If rescheduling is impossible, Oregon best practice is 15 minutes of work with 45 minutes of rest every hour)

OSHA advises that work/rest schedules be adjusted based on how strenuous the work activities are, how exposed workers are to direct sunlight[9], the effects of Personal Protective Equipment (PPE) on the body's ability to retain heat, and the effect of the type of work clothing on the body's ability to retain heat. In particular, a worker's level of activity impacts the effects of heat and vulnerability to heat-related illness; most heat-related illness affects workers who do strenuous physical activity. More information can be found in Appendix B.

Regardless of the heat index, workers who exhibit or complain of any early signs or symptoms of heat-related illness should be given a break in a cool or shaded area and treated and/or monitored before returning to work. Likewise, worksite managers and coworkers should remind and encourage everyone to drink water frequently, especially when the heat index exceeds 80 degrees Fahrenheit.

Clothing & PPE Best Practices

Some clothing can serve as protection from high heat. Outdoor workers should wear the following types of items during high heat when they do not interfere with other safety equipment:

- Lightweight, light colored, long-sleeved, loose-fitting clothes
- Sweat-wicking fabric (air-cooled garments)
- Wide-brim hats
- Cooling vests
- Water-cooled garments or wetted overgarments (such as a wet towel on the neck)
- Sunscreen

The CDC recommends that workers who are required to wear PPE due to the nature of their work (e.g. face masks, helmets, gloves, heavy clothing, etc.) be monitored for signs and symptoms of heat-related illness with extra attention, as this type of PPE can significantly increase a worker's internal temperature.[10]

2. Training

Employers can protect outdoor workers by training them annually and <u>before</u> extreme heat exposure.

An effective training will address:

[9] The National Weather Service says that sunlight can increase the heat index (or the "feels like" temperature) by up to 15°F.

[10] See Chapter 3.3 of CDC/NIOSH guidance for more information about how PPE can increase workers' risks of heat-related illness.

- The signs and symptoms of common heat-related illnesses (see Appendix C for details)
- Information on the employer's acclimatization and emergency/first aid plans
- An overview of the rest and relief measures that the employer will provide to workers during extreme heat

Links to example trainings and information on preventing heat-related illness at outdoor worksites can be found in Appendix A.

3. Planning & Preparedness

Employers should acclimate workers to the heat and make a written plan for how they handle acclimatization, extreme weather preparedness, and emergency response.

Acclimatization: Easing Into Work

New and returning workers need to build tolerance to heat (acclimatize) and take frequent breaks. New workers whose bodies have not had time to adjust to working in the heat are most vulnerable — according to federal OSHA, nearly three out of four workers who die from heat-related causes in the United States die in their first week on the job. Employers should institute acclimatization measures when the heat index is at or above 80 degrees Fahrenheit. The box below explains the best practice (according to OSHA and other states) to allow workers to acclimate to the heat. The same principles apply for acclimating workers to cold weather.

2, 4, 6, 8, that's how we acclimate!

- On Day One in the heat, a new or returning worker should work 20-25% of a shift at full intensity.
- Increase the time working at full intensity by 20-25% a day.
- Closely watch all new/returning workers for 14 workdays.

*Another way to put it: For an employee that works 8-hour shifts, start them off with **two** hours the first day, then **four** hours the second day, **six** hours the third day, and finally **eight** hours by the final day.*

Write a Plan on Protections & Emergency Response

OSHA recommends that employers write down their plans for employee rest and relief, training, acclimatization, and emergency protocols. The plan should be provided to workers during their onboarding and during an annual training on extreme heat. The written plan can include elements such as, but not limited to:

- Flexibility measures to move work to cooler times of the day when the heat index is high
- Signs and symptoms of common heat-related illnesses and basic first aid that workers and supervisors can easily follow (see Appendix C)
- Methods of monitoring the conditions that workers are exposed to
- Procedures for activating the illness prevention and emergency response plans
- Methods of alerting affected staff to hazard exposure
- Site-specific emergency response procedures *(Note that a worker experiencing heat stroke needs to be treated within 30 minutes, and any delay can be deadly. NYSDOL advises employers call 911 if symptoms are present)*
- A "buddy system" during times of extreme weather

- A two-way communication system with workers to ensure supervisors are keeping track of all workers when the heat index is high

It is best for employers to also keep daily records of all heat-related illnesses and injuries, regardless of severity, as they occur.

Cold

According to the CDC, employers should avoid having outdoor workers exposed to extremely cold temperatures if possible. When cold environments or temperatures cannot be avoided, employers should follow key safety recommendations to protect workers from cold stress. The CDC's National Institute of Occupational Safety and Health (NIOSH) has a basic set of worker-related recommendations for cold weather, which can be found here. Below are guidelines from NYSDOL on how to best protect workers from cold weather.

How to Measure Wind Chill:

It is best for employers to evaluate the wind chill to determine what worker protections are most appropriate. Wind chill is the temperature the body feels when air temperature and wind speed are combined. For example, when the air temperature is 40°F, and the wind speed is 35 mph, the effect on the exposed skin is as if the air temperature is 28°F.

Employers can determine the wind chill using the National Weather Service Wind Chill Calculator. With this tool, one may input the air temperature and wind speed (measured on-site or found through a common weather app), and it will calculate the wind chill temperature.

1. Rest & Relief

Employers can protect their workers by offering warmth, rest, and PPE when it is cold outside. Following guidance from federal OSHA, NYSDOL does not provide a single specific cold threshold at which rest and relief recommendations are applicable. What constitutes extreme cold and its effects can vary across the state. In regions that are not accustomed to strong winter weather, near freezing temperatures are considered "extreme cold." A cold environment forces the body to work harder to maintain its temperature. Whenever temperatures drop below normal and wind speed increases, heat can leave the body more rapidly.

Warmth & Rest Best Practices

NIOSH recommends that employers limit workers' time in the cold whenever possible. The American Conference of Governmental Industrial Hygienists (ACGIH) recommends that employers schedule maintenance and repair jobs in cold areas for warmer months and/or schedule cold jobs for the warmer part of the day. If working in the cold in unavoidable, employers should give workers frequent breaks in warm areas. Employers could use ACGIH's table of suggested work/rest schedules, which is based on temperature and wind speed:

Equivalent Chill Temperature Chart
(Work/Warm-up Schedule for Four-Hour Shifts)

Estimated Wind Speed (In mph)	Actual Temperature Reading (Degrees Fahrenheit)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent Chill Temperature (Degrees Fahrenheit)											
Calm	50	40	30	20	10	0	-10	-20	**-30**	**-40**	**-50**	**-60**
5	48	37	27	16	6	-5	-15	**-26**	**-36**	**-47**	**-57**	**-68**
10	40	28	16	4	-9	-24	**-33**	**-46**	**-58**	**-70**	**-83**	**-95**
15	36	22	9	-5	-18	**-32**	**-45**	**-58**	**-72**	**-85**	**-99**	**-112**
20	32	18	4	-10	**-25**	**-39**	**-53**	**-67**	**-82**	**-96**	**-110**	**-121**
25	30	16	0	-15	**-29**	**-44**	**-59**	**-74**	**-88**	**-104**	**-118**	**-133**
30	28	13	-2	-18	**-33**	**-48**	**-63**	**-79**	**-94**	**-109**	**-125**	**-140**
35	27	11	-4	-20	**-35**	**-51**	**-67**	**-82**	**-98**	**-113**	**-129**	**-145**
40	26	10	-6	-21	**-37**	**-53**	**-69**	**-85**	**-100**	**-116**	**-132**	**-148**

(wind speeds greater than 40 mph have little additional effect.)

PERSONAL APPAREL NEEDED

EXTREME WEATHER CONDITIONS—PROTECTIVE OUTERWEAR REQUIRED

LITTLE DANGER
Potential for a false sense of security.

INCREASING DANGER
Danger of freezing of exposed flesh within one minute.

GREAT DANGER
Flesh may freeze within 30 seconds.

Work/Warm-up Schedule for a Four-Hour Shift

	55 min work		10 min rest	55 min work		10 min rest	55 min work		10 min rest	55 min work	
	30 min work	10 min rest	30 min work	10 min rest	30 min work	10 min rest	30 min work	10 min rest	30 min work	10 min rest	30 min work
	Non-emergency work should cease										

NOTE: An employee experiencing any of the initial symptoms of frostbite or hypothermia must immediately move to a warm location and notify her or his supervisor.

*Extrapolated from the ACGIH's Threshold Limit Values and Biological Exposure Indices [11]

Regardless of the wind chill temperature, workers who exhibit any early signs or symptoms of cold-related illness should be given a break in a warm area for any necessary treatment and monitored before returning to work. It is important to note that dehydration can occur in a cold environment and can increase the risk of hypothermia. When it is cold outside, workers should avoid caffeine and instead opt for warm water and/or electrolyte drinks (such as sports drinks).

It is also best practice for employers to provide radiant heaters on worksites and break areas. If possible, employers can also shield work areas from drafts or wind to reduce wind chill. Employers can also include chemical hot packs in their first aid kits.

Clothing & Personal Protective Equipment Best Practices

Dressing properly is extremely important in preventing cold stress in workers, and the fabric being worn is important; wool, silk and most synthetics are best, as they retain their insulation even when wet.

[11] This chart was accessed through Washington State University.

Cotton, however, loses its insulation value when it becomes wet. Below is an overview of recommendations related to clothing and PPE protection during extreme cold:

Layers: Workers should wear at least three layers of loose-fitting clothing. Layering provides better insulation, and workers can take layers off if they begin to sweat and put them back on when they cool down. Workers should not wear tight fitting clothing because they reduce blood circulation to the extremities. It is most protective for workers to wear the following three layers in the cold:

- An inner layer of wool, silk or synthetic to keep moisture away from the body
- A middle layer of wool, fleece, or synthetic to provide insulation even when wet
- An outer wind and rain protection layer that allows some ventilation to prevent overheating

Hats: Workers should wear a hat or hood to help keep the body warmer. Hats reduce the amount of body heat that escapes from the head. For workers who need to wear a hard hat, use of a "winter liner" specifically designed to be compatible with the hard hat's protective properties is **allowed** under OSHA hard hat requirements. However, some hats and liners will detract from the effectiveness of the hard hat. Therefore, OSHA recommends that employers permit only liners that are specifically designed to be compatible with the protective properties of the hard hat. OSHA also recommends that the employer contact the hard hat manufacturer to determine if any type of liner or garment is compatible with the use of the hard hat. Workers can also wear a knit mask to cover the face and mouth, if needed.

Gloves: Workers should wear insulated gloves to protect the hands, and the gloves should be water resistant if necessary. The ACGIH recommends wearing gloves at following windchill temperatures: Below 60.8 degrees Fahrenheit for sedentary work, below 39.2 degrees Fahrenheit for light work, below 19.4 degrees Fahrenheit for moderate work, and below 0 degrees Fahrenheit wear mittens which are more protective than gloves if work allows.

Socks & Shoes: Tight-fitting footwear restricts blood flow. Footwear should be large enough to allow wearing either one thick or two thin pairs of socks. Wearing too many socks can tighten fit and harm rather than help. Socks made from acrylic are best because they keep feet dry by slicking away perspiration from inside shoes and boots. Workers should wear insulated and waterproof footwear, especially if working in wet conditions and/or standing water.

Keep Clothing Dry: It is imperative to keep all clothes dry in the cold, and to change if clothes get wet from outdoor factors or from sweat. Wet feet lose heat 25-times faster than dry feet. At wind chill temperatures of 60 degrees Fahrenheit or less, ACGIH recommends that workers whose **feet and/or socks** get wet for any reason to immediately change socks. At wind chill temperatures of 35 degrees Fahrenheit or less, the ACGIH recommends that workers whose **body clothing** gets wet for any reason to immediately change into dry clothing. Employers can carry extra gloves, hats, jacket, and a change of clothes for workers who get wet.

2. Training

Employers can protect their outdoor workers by training them annually and before extreme cold exposure.

An effective training will include:

- The signs and symptoms of common cold-related illnesses (see Appendix C for details)

- Information on the employer's acclimatization and emergency/first aid plans
- An overview of the rest and relief measures that the employer will provide to workers during extreme cold

Links to example trainings and further information on preventing cold-related illness at outdoor worksites can be found in Appendix A.

3. Planning & Preparedness

OSHA recommends that employers acclimate workers to the cold and make a written plan for how they will handle acclimatization, extreme weather preparedness, and emergency response.

Acclimatization: Easing Into Work

New and returning workers need to build tolerance to cold weather (acclimatize) and take frequent breaks. New employees whose bodies have not had time to adjust to working in the cold are most vulnerable. Please refer to the box on acclimatization on page xyz of the heat section for specific guidance on how to best acclimate workers to the cold.

Write a Plan on Protections & Emergency Response

It is best for employers write down their plans for employee rest and relief, training, acclimatization, and emergency protocols. The plan should be provided to workers during their onboarding and during their annual training on extreme cold. The written plan can include elements such as, but not limited to:

- Signs and symptoms of common cold-related illnesses and basic first aid that workers and supervisors can easily follow (see Appendix C for basics)
- Methods of monitoring the conditions that workers are exposed to
- Procedures for activating the illness prevention and emergency response plans
- Methods of alerting affected staff to hazard exposure
- Site-specific emergency response procedures *(NYSDOL advises employers call 911 if symptoms of cold-related illness are present)*
- A "buddy system" during times of extreme cold
- A two-way communication system with workers to ensure supervisors are keeping track of all workers when the wind chill is low

Protecting Outdoor Workers from Wildfire Smoke Hazards

Poor air quality from wildfire smoke is a potential workplace hazard for outdoor workers in New York State. Smoke can be present on worksites outside of the acute wildfire area. This guidance follows best practices from California, Oregon, and Washington, which require employers to protect all outdoor workers from poor air quality caused by wildfire smoke. This section offers guidance on best practices for employers to protect outdoor workers from poor air quality caused by wildfire smoke.

How to Measure the Air Quality Index:
The best way to know whether outdoor workers are being exposed to wildfire smoke is to identify the Air Quality Index (AQI) for Particulate Matter (PM) 2.5 on or near the worksite. To determine the AQI on a worksite, employers may use www.AirNow.gov, which offers real-time information on the PM2.5 levels in any given ZIP code, as well as basic information on vulnerable groups and tips for how to continue or discontinue outdoor activities.

In addition to the AirNow website, if an employer prefers, there are several other trustworthy resources to determine the current and forecast AQI, including, but not limited to: the U.S. EPA's website www.enviroflash.info and NYS DEC's hourly AQI forecast map.

1. Rest & Relief

Employers can protect their outdoor workers by providing safe structures, breaks, and PPE when the AQI exceeds 150, with more intensive measures once the AQI exceeds 300.

Breaks & Safe Structures Best Practices

When the AQI for PM 2.5 exceeds 150, it is best practice for employers to provide general administrative measures such as: relocating work to a location where the current AQI for PM2.5 is lower, changing work schedules, and/or reducing work intensity. If workers must be outdoors when the AQI exceeds 150, it is recommended that employers provide relief from the smoke by offering breaks as necessary in enclosed buildings, structures, or vehicles where the air is effectively filtered.

Based on best practice from the NYS DHSES, it is recommended that work be canceled or rescheduled once the Air Quality Index exceeds 300.

PPE Best Practices

Where the current AQI for PM 2.5 exceeds 150, but does not exceed 300, employers can protect their outdoor workers by providing enough filtering facepiece respirators for all exposed workers for voluntary use. Facepiece respirators should be NIOSH-approved devices that effectively protect the wearers from inhalation of PM2.5, such as N95 filtering facepiece respirators[12]. When providing respirators, employers must comply with OSHA's respiratory protection requirements. In particular, respirators should be cleaned or replaced as appropriate, stored, and maintained, so that they do not present a health hazard to users.

According to OSHA, when providing dust masks or disposable respirators for voluntary use, employers must provide employees with a copy of *Appendix D of OSHA's respiratory standard*. When offering voluntary use of any other type of respirator (anything offering greater protection such has half-face or full-face air purifying respirator) – an employer must develop and implement a written respiratory protection program that addresses medical evaluations, procedures for cleaning, maintenance, and storage, and still provide employees Appendix D of OSHA's respiratory standard.

[12] NIOSH approved filtering facepiece respirators do not include any "KN" designations, such as KN95s. Such "KN" respirators are not appropriate to reduce employee exposure to wildfire smoke. NIOSH-approved filtering facepiece respirators appropriate for wildfire smoke protection include: N95, N99, N100, R95, R99, R100, P95, P99, and P100.

Where the current AQI for PM 2.5 is equal to or greater than 300 and general administrative measures are not feasible (i.e. canceling work, moving indoors, or shifting work schedule), employers can protect workers by providing a sufficient number of respirators to all workers for mandatory use. At an AQI over 300, it is best for employers to provide respirators with an assigned protection factor (APF) of 25 or more.

2. Training

OSHA recommends that employers train outdoor workers to protect them from wildfire smoke hazards. Employers should consider offering the training annually and before workers are exposed to wildfire smoke.

An effective training will include:

- The signs and symptoms of common smoke-related illnesses (see Appendix C for details)
- Information on the employer's emergency/first aid plans
- An overview of the rest and relief measures that the employer will provide to workers during wildfire smoke exposure

A list of possible training topics and further information on preventing wildfire smoke-related illness at outdoor worksites can be found in Appendix A.

3. Planning & Preparedness

OSHA recommends that employers document their plans for employee rest and relief, training, and emergency protocols. The plan should be provided to workers during their onboarding and during their annual training on wildfire smoke hazards. The written plan can include elements such as, but not limited to:

- Flexibility measures to move work indoors or postpone until the smoke lifts
- Signs and symptoms of common smoke-related illnesses and basic first aid that workers and supervisors can easily follow (see Appendix C)
- Methods of monitoring the conditions that workers are exposed to
- Procedures for activating the illness prevention and emergency response plans
- Methods of alerting affected staff to hazard exposure
- Site-specific emergency response procedures *(NYSDOL advises employers call 911 if symptoms of smoke-related illness are present)*
- A "buddy system" when wildfire smoke hazards are present
- A two-way communication system with workers to ensure supervisors are keeping track of all workers when wildfire smoke is present

Protecting Outdoor Workers from Extreme Precipitation Hazards

New York State is vulnerable to multiple extreme precipitation events including hurricanes, snowstorms, blizzards, ice storms, floods, and flash floods. The following section provides employer guidance on how to keep workers safe before, during, and after an extreme precipitation event.

Understanding National Weather Service Alerts

To determine the appropriate measures to protect workers, it is recommended that employers follow the alerts issued by the National Weather Service before and during extreme precipitation events. Active alerts for New York State are provided on the National Weather Service website.

Employers should familiarize themselves with the weather warnings issued by the National Weather Service (listed in Appendix D). It is best to stay abreast of local weather reports during an advisory or watch and be prepared to initiate emergency protocols if or when hazardous weather is predicted locally. If a warning for extreme precipitation is issued, employers should initiate plans to contact and account for workers and ensure they are able to get somewhere safe.

1. Rest and Relief

Employers can protect their workers by providing breaks, PPE, and changing work schedules or locations during the wet conditions proceeding, during, and following an extreme precipitation event.

Work/Rest Schedules:

Before an Extreme Precipitation Event: During a hurricane watch, storm watch, flood watch, flood advisory, or winter weather advisory, employers should consider the tasks workers are asked to complete. If employees cannot be protected from wet weather hazards through training or PPE, employers can reschedule or rearrange work or tasks to avoid wet weather hazards. During wet conditions, employers are recommended to provide a warm and dry indoor place for workers to dry off, warm up (if it is cold outside) and change out of wet clothes and shoes. Workers should change clothes and shoes whenever these items become wet and take breaks when they show symptoms of cold stress.

During an Extreme Precipitation Event: It is extremely dangerous to be outside during a hurricane, snowstorm, blizzard, or an active flood where water is still rising or moving. Only trained emergency response workers should be outside during these events. It is best practice for employers to not ask employees to work outside during these extreme precipitation events unless they are appropriately trained in emergency response. If a hurricane, storm, blizzard, or flood warning is issued for a workplace location, employers should initiate their weather safety plan (discussed in the next section).

After a Hurricane or During a Long-Term Flood: If workers are asked to work in floodwaters or with materials that have come into contact with flood waters after an extreme precipitation event, OSHA recommends they wash hands with soap and clean running water before work breaks, meal breaks, and at the end of work. OSHA also recommends employers keep an adequate supply of clean water available for workers to use for washing and drinking. It is important to listen to guidance from local authorities to ensure tap water is safe before using, as sewage lines can be destroyed in heavy storms and contaminate the water supply. Alcohol-based hand sanitizer can be used if soap and water is unavailable. The CDC provides detailed guidance on how to make water safe in an emergency. NIEHS (National Institute of Environmental Health Sciences) recommends workers have frequent breaks when doing cleanup work following a hurricane or flood as this work can be taxing.

Personal Protective Equipment:

Before or During an Extreme Precipitation Event: To protect workers from the hazards of wetness during a watch or advisory, employers can provide protective gear, tools, and clothing. Being wet for prolonged

periods of time increases the rate at which the body loses heat and the likelihood of hypothermia and trench foot. See p.X of the Cold section for the appropriate wet weather gear to keep workers dry.

Wet and icy conditions also increase the risk of injury by making surfaces more slippery and occluding vision. The following tools can protect workers:

- Gloves that have strong slip-proof grip.
- Anti-fog goggles, spray, or wipes. (If work requires eye protection it is important to ensure goggles are treated with anti-fog spray or wipes to ensure vision remains clear.)
- Waterproof boots that have a deep tread to provide traction.
- Ice cleats for workers that must continuously walk on ground that is iced over.
- Tools that are rated for outdoor applications and have textured nonslip handles.

Equipment that uses electricity should be avoided unless it is rated for working in wet weather.

After a Hurricane or During a Long-Term Flood: Floodwater can be contaminated with biological and chemical hazards as well as sharp debris. If workers must enter floodwater, it is important that they have proper PPE and gear to protect from contamination and injury, such as the following:

- Waterproof boots with a steel or composite toe. Hip-length waders may also be appropriate.
- Heavy cut-resistant work gloves and waterproof gloves. NIOSH recommends double gloving with a waterproof glove underneath a heavy work glove to ensure skin is protected from flood water.
- If the water is contaminated with biological or chemical hazards, a worker's entire body may need additional protection. As always, follow guidance of local authorities regarding the safety of entering flood water.
- If workers are working with materials contaminated by mold, NIEHS recommends they use NIOSH approved respirators, eye goggles without ventilation holes, and long gloves. NIOSH provides additional guidance on respiratory protection for working with mold. Employers must always be compliant with OSHA's respiratory protection requirements when supplying respiratory protection.
- Workers may also need insect repellent, sunglasses, sunscreen, hard hats, a personal flotation device, and safety goggles depending on the job they are doing and worksite hazards they face.

NIOSH provides additional guidance on PPE for workers involved in flood and hurricane response. OSHA provides a general fact sheet on how to clean materials that have been exposed to flood water.

2. Training

Employers can protect their workers by offering training annually and before exposure to heavy rain or snow. An effective training will include:

- The signs and symptoms of illnesses related to exposure to extreme precipitation (see Appendix C for details)
- Information on the employer's emergency/first aid plans
- An overview of the rest and relief measures that the employer will provide to workers during extreme precipitation weather events

In the event of a long-term flood, training on working in standing flood water should occur before work begins.

A list of additional training topics on preventing workplace illness or injury at outdoor worksites due to extreme precipitation can be found in Appendix A.

3. Planning and Preparedness

It is best for employers to make a written plan for how they will protect workers from wet weather hazards and handle extreme weather preparedness and emergency response, as well as enact post-storm assessments and protections as necessary.

Write a Plan on Protections & Emergency Response

Employers should document their plans for employee rest and relief, training, and emergency protocols during extreme precipitation events. The plan should be provided to workers during their onboarding and during their annual training on precipitation exposure and safety. The written plan can include elements such as, but not limited to:

- Flexibility measures to move work indoors or postpone until the storm passes or flood waters recede.
- Signs and symptoms of common hazards and illness related to extreme precipitation exposure, and basic first aid that workers and supervisors can easily follow (see Appendix A for basics).
- Methods of monitoring the conditions that workers are exposed to.
- Procedures for activating the illness prevention and emergency response plans.
- Methods of alerting affected staff to hazard exposure.
- Site-specific emergency response procedures including evacuation protocols, storm shelter. locations, and what to do in the event of power outage. *NYSDOL advises employers to call 911 if symptoms of weather-related illness or life-threatening hazards are present.*
- A "buddy system" when extreme precipitation hazards are present.
- A two-way communication system with workers to ensure supervisors are keeping track of all workers when extreme precipitation weather events occur.

Post-Storm Assessment

After a hurricane or during a long-term flood, OSHA recommends employers assess the hazards at a worksite and identify appropriate protections before workers begin work, as storms can leave serious hazards behind. Standing flood water, downed tree branches, and unstable structures should be handled with caution. Call 911 if a worksite contains hazards that could be immediately life threatening including downed power lines, damaged utilities, or chemical contamination.

WORKERS: You are protected from employers that retaliate against you for reporting any workplace health or safety concern. For more information on your rights visit the NYSDOL Public Employee Safety & Health (PESH) Bureau or the Federal Occupational Safety & Health Administration (OSHA) webpages.

Appendix A: Example Trainings & Recommended Training Topics

Heat

OSHA has a training guide that employers can use verbatim, but it is best practice to add in the details of your site-specific procedures as well.

In addition to the OSHA training template, employers can look to examples from other states, including:

- This training template from California in English, Spanish, and Simplified Chinese
- This online course from Oregon
- This training from Washington

In addition to training, employers can provide workers with pocket cards like this one from federal OSHA (en and sp). Posters (en and sp) are also useful, as is this "Daily Supervisor checklist" (en and sp) from California OSHA's heat-illness prevention program.

Cold

The federal OSHA webpage on cold stress alongside this guidance document from NYSDOL are good starting places for creating a workplace training on cold-related illness. Overall, training should include:

- How to recognize the environmental and workplace conditions that can lead to cold stress.
    - i.e. Workers should not touch metal with wet hands when it is cold outside.
- The symptoms of cold stress, how to prevent cold stress, and what to do to help those who are affected.
- How to select proper clothing for cold, wet, and windy conditions.

Employers can also look to this training example from Washington.

In addition to training, employers can give workers and supervisors pocket cards such as this one from the CDC and/or this one from Oregon OSHA.

Wildfire Smoke

In keeping with other states, the recommended topics for training on wildfire smoke exposure include:

- The symptoms of wildfire smoke exposure.
- The potential acute and chronic health effects from wildfire smoke exposure, including increased health risks to sensitive groups, and how chronic exposures can increase the risk of cardiovascular disease and can exacerbate asthma.
- Each employee's right to report health issues related to wildfire smoke exposure and obtain medical treatment for such workplace exposures without fear of retaliation.
- How workers can obtain the current average and forecast ambient air concentration for PM2.5 and equivalent AQI value for their work location.

- The importance, limitations, and benefits of using a filtering facepiece respirator, and how to use and maintain their filtering facepiece respirator.
- The employer's methods to protect workers from wildfire smoke, including how filtering facepiece respirators are made readily accessible to workers for voluntary use (meeting OSHA standards), and how workers can obtain such respirators before exposure and replace them when needed.
- Review of any job tasks performed by employees in which the use of a filtering facepiece respirator would expose the wearer to a hazard associated with a substantially more serious injury or illness than the potential acute health effects of wildfire smoke exposure.
- The procedures supervisors should follow when an employee reports or exhibits health symptoms that necessitate immediate medical attention, including, but not limited to, asthma attacks, difficulty breathing, and chest pain.
- An explanation of the employer's two-way communication system for wildfire smoke exposure control information

Precipitation

Recommended training topics for working in wet conditions, preparing for an extreme precipitation event, and post hurricane and flood response have been compiled from state and federal agencies and safety professional organizations.

Working in Wet Conditions

Recommended training topics on working in wet conditions include:

- The importance of using caution and moving more slowly and deliberately when working in wet or icy conditions.
- The appropriate tools to use in wet weather and how to use them.
- The appropriate wet weather gear and clothes and tips to wear them properly.
- If workers must drive for part of their work, train workers on how to drive safely in wet or winter weather conditions. (The New York State DMV Drivers Manual provides tips for driving in the snow, rain and in winter.)
- Train workers on any additional weather considerations for the specific work they are tasked with and the specific weather their workplace location experiences.
- How to recognize the signs and symptoms of both hypothermia and trench foot and the appropriate first aid to treat them.

OSHA provides additional guidance on how workers and employers can keep safe during winter weather

The Hazards of Storms, Blizzard, Hurricanes and Active Floods

Recommended topics on the hazards of storms, blizzards, hurricanes, and active floods include:

- The importance of staying out of moving flood waters when on foot and not driving through flood waters. For example, it only takes six inches of moving flood water to knock someone off their feet or stall a car. A foot of flood water can float most cars and two feet of moving flood water can carry most vehicles away.

- The importance of staying far away from downed power lines. Workers should assume that any downed powerlines are energized. In wet conditions powerlines can energize the ground by 35 feet or more.
- The risks associated with being outside during a hurricane, snowstorm, blizzard including flying debris, hypothermia, dangerous driving conditions, and poor visibility.
- The meaning of warnings issued by the National Weather Service and what parts of the workplace's weather safety plan are implemented for each type of warning. National Weather Service Warnings are provided in the appendix of this guidance.
- The specific weather risks of the workplace location. This training should alert workers to the types of weather the workplace is at risk for including but not limited to if the workplace location has a history of being hit by: storm surge; coastal flooding; winter storms; or is in a low-lying area at risk of flood.
- How to implement emergency protocols if an extreme precipitation event is expected to in the workplace location.

OSHA additional provides guidance on how workers and employers can prepare for hurricanes and floods.

Working in Floodwaters

NIEHS provides in depth training material for workers and employers involved in flood and hurricane response including power points, booklets, and fact sheets on flood cleanup, hurricane cleanup, urban flooding, and debris cleanup. OSHA provides useful PDF fact sheets for workers involved cleanup work after a extreme precipitation event and how to protect oneself from the hazards of flood water. Finally, OSHA provides an useful matrix outlining the hazards workers may encounter after an extreme precipitation event and the measures that can be employed to protect against them.

Recommended training topics for standing flood water include:

- Hazards of standing flood water including chemical and biological contamination.
- Proper PPE for flood water (discussed above) and how to use it.
- The importance of washing skin, clothes, and gear that come in contact with flood water or other contaminants. Clothes that come in contact with flood water should be washed thoroughly with detergent and water separately from non-contaminated clothes. Gear and tools should be washed with soapy water and allowed to dry.
- Keeping any open wounds protected from contamination and the importance of having an up-to-date tetanus shot.
- The dangers of mold and the PPE to protect against it.
- The dangers of driving through standing water.
- The symptoms of trench foot and the importance of keeping feet dry.
- The dangers of fallen utilities and risk of electrocutions.
- The dangers of traumatic stress and the importance of taking breaks.
- Workers also should be trained on the specific work they are being asked to do and how to use any tools they must use in their work.

Appendix B: Examples of Workload Intensities

The below information is taken directly from OSHA's "Heat Hazard Recognition" webpage. Workload intensities are most relevant when considering extreme heat protections.

Most heat-related illnesses affect workers who do strenuous physical activity. When workers engage in intense work, their bodies create heat. This "metabolic" heat combines with environmental heat (from temperature, sunlight, humidity, etc.) so workers' core temperature can rise to dangerous levels.

To prevent a hazardous combination of environmental and metabolic heat, **employers should be aware of workers' activity level**. Workload can be classified as light, moderate, heavy, or very heavy.

- Light: Sitting or standing with minimal arm and leg work.
- Moderate: Continuous modest intensity, such as light pushing/pulling or normal walking.
- Heavy: Intense upper body work such as carrying loads or sawing.
- Very heavy: Intense activity at an almost maximum pace.

Heavy and very heavy work carry the highest risk of heat-related illness.

The following table shows more examples of activities in each workload category.

Level of Workload / Physical Activity *	Examples	Metabolic Rate in Watts, "typical" recognizing that different ways of doing the same task may lead to dramatically different wattage
Rest	- Sitting - Thinking	115
Light	- Sitting with minimal hand and arm work - Sewing - Writing or drawing - Driving a car - Occasional or slow walking - Stooping, crouching, or kneeling - Standing watch	180
Moderate	- Pushing and pulling light carts - Hammering nails - Picking fruit or vegetables - Continuous normal walking - Driving or operating mobile equipment - Raking - Mopping or vacuuming floors - Scraping, painting, or plastering - Laundry/dry cleaning - Tapping and drilling	300

	- Machining - Molding - Packaging - Laboratory work - Cooking - General carpentry - Using hand tools	
Heavy	- Intense arm and trunk work - Carrying loads - Shoveling - Sawing or heavy carpentry - Roofing - Pushing and pulling heavy carts or wheelbarrows - Fast walking (> 4 mph) - Landscaping - Casting - Manual raising and lowering loads - Stacking lumber - Truck and automobile repair - Waxing and buffing by hand - Welding - Heavy item assembly - Grinding and cutting - Drilling rock or concrete - Mixing cement - Felling trees	415
Very heavy	- Any activity done at near maximum pace - Climbing stairs, ladder, or ramp - Using an ax - Intense shoveling or digging - Sledgehammer use - Stacking concrete - Brick or stone masonry - Firefighting - Rapid marching or physical fitness training	520

Estimating each worker's workload is important. More protections are necessary for workers who do intense labor (e.g. labor activities that elevate a worker's heart rate and respiration rate through exertion). These workers should be given frequent rest breaks and work should be scheduled in the cooler part of the day. When in doubt about a worker's physical activity level, assume a higher workload or consult a qualified occupational safety and health professional.

Appendix C: Signs & Symptoms of Common Weather-Related Illnesses

Heat

Below are the signs and symptoms of common heat-related illnesses according to the CDC:

Heat Stroke

What To Look For

- High body temperature (103°F or higher)
- Hot, red, dry, or damp skin
- Fast, strong pulse
- Headache
- Dizziness
- Nausea
- Confusion
- Losing consciousness (passing out)

What To Do

- Call 911 right away-heat stroke is a medical emergency
- Move the person to a cooler place
- Help lower the person's temperature with cool cloths or a cool bath
- Do not give the person anything to drink

Heat Exhaustion

What To Look For

- Heavy sweating
- Cold, pale, and clammy skin
- Fast, weak pulse
- Nausea or vomiting
- Muscle cramps
- Tiredness or weakness
- Dizziness
- Headache
- Fainting (passing out)

What To Do

- Move to a cool place
- Loosen your clothes
- Put cool, wet cloths on your body or take a cool bath
- Sip water

Get medical help right away if:

- An employee is throwing up
- An employee's symptoms get worse
- An employee's symptoms last longer than 1 hour

Heat Cramps

What To Look For

- Heavy sweating during intense exercise
- Muscle pain or spasms

What To Do

- Stop physical activity and move to a cool place
- Drink water or a sports drink
- Wait for cramps to go away before you do any more physical activity

Get medical help right away if:

- Cramps last longer than 1 hour
- The employee is on a low-sodium diet
- The employee has heart problems

Sunburn

What To Look For

- Painful, red, and warm skin
- Blisters on the skin

What To Do

- Stay out of the sun until your sunburn heals
- Put cool cloths on sunburned areas or take a cool bath
- Put moisturizing lotion on sunburned areas
- Do not break blisters

Heat Rash

What To Look For

- Red clusters of small blisters that look like pimples on the skin (usually on the neck, chest, groin, or in elbow creases)

What To Do

- Stay in a cool, dry place
- Keep the rash dry
- Use powder (like baby powder) to soothe the rash

Cold

Cold stress occurs by driving down the skin temperature and eventually the internal body temperature (core temperature). This may lead to serious health problems, and may cause tissue damage, and possibly death. NIOSH offers a list of the types of cold-related illness, signs and symptoms, and first aid. The information listed below is from their sources.

Hypothermia

When exposed to cold temperatures, your body begins to lose heat faster than it is produced. Prolonged exposure to cold will eventually use up your body's stored energy. The result is hypothermia, or abnormally low body temperature. A body temperature that is too low affects the brain, making the victim unable to think clearly or move well. This makes hypothermia particularly dangerous because a person may not know it is happening and will not be able to do anything about it.

Symptoms

Symptoms of hypothermia can vary depending on how long you have been exposed to the cold temperatures.

Early Symptoms:

- Shivering
- Fatigue
- Loss of coordination
- Confusion and disorientation

Late Symptoms:

- No shivering
- Blue skin
- Dilated pupils
- Slowed pulse and breathing
- Loss of consciousness

First Aid

Take the following steps to treat a worker with hypothermia:

- Alert the supervisor and request medical assistance (call 911).
- Move the victim into a warm room or shelter.
- Remove their wet clothing.
- Warm the center of their body first-chest, neck, head, and groin-using an electric blanket, if available; or use skin-to-skin contact under loose, dry layers of blankets, clothing, towels, or sheets.
- Provide warm beverages as they may help increase the body temperature, but do not give alcoholic beverages. Do not try to give beverages to an unconscious person.
- After their body temperature has increased, keep the victim dry and wrapped in a warm blanket, including the head and neck.
- If victim has no pulse, begin cardiopulmonary resuscitation (CPR).

Immersion Hypothermia from Cold Water Immersion

Cold water immersion creates a specific condition known as immersion hypothermia. It develops much more quickly than standard hypothermia because water conducts heat away from the body 25 times faster than air. Typically people in temperate climates don't consider themselves at risk from hypothermia in the water, but hypothermia can occur in any water temperature below 70°F. Survival times can be lengthened by wearing proper clothing (wool and synthetics and not cotton), using a personal flotation device (PFD, life vest, immersion suit, dry suit), and having a means of both signaling

rescuers (strobe lights, personal locator beacon, whistles, flares, waterproof radio) and having a means of being retrieved from the water. Below you will find links with information about cold water survival and cold water rescue:

- NIOSH Commercial Fishing Safety Topic Page
- Alaska Marine Safety Education Association
- Minnesota Sea Grant
- U.S. Search and Rescue Task Force
- NIOSH Firefighter FACE Program Reports on Drowning

Frostbite

Frostbite is an injury to the body that is caused by freezing. Frostbite causes a loss of feeling and color in the affected areas. It most often affects the nose, ears, cheeks, chin, fingers, or toes. Frostbite can permanently damage body tissues, and severe cases can lead to amputation. In extremely cold temperatures, the risk of frostbite is increased in workers with reduced blood circulation and among workers who are not dressed properly.

Symptoms

Symptoms of frostbite include:

- Reduced blood flow to hands and feet (fingers or toes can freeze)
- Numbness
- Tingling or stinging
- Aching
- Bluish or pail, waxy skin

First Aid

Workers suffering from frostbite should:

- Get into a warm room as soon as possible.
- Unless absolutely necessary, do not walk on frostbitten feet or toes-this increases the damage.
- Immerse the affected area in warm-not hot-water (the temperature should be comfortable to the touch for unaffected parts of the body).
- Warm the affected area using body heat; for example, the heat of an armpit can be used to warm frostbitten fingers.
- Do not rub or massage the frostbitten area; doing so may cause more damage.
- Do not use a heating pad, heat lamp, or the heat of a stove, fireplace, or radiator for warming. Affected areas are numb and can be easily burned.
- Seek medical attention if necessary.

Trench Foot

Trench foot, also known as immersion foot, is an injury of the feet resulting from prolonged exposure to wet and cold conditions. Trench foot can occur at temperatures as high as 60 degrees F if the feet are constantly wet. Injury occurs because wet feet lose heat 25-times faster than dry feet. Therefore, to prevent heat loss, the body constricts blood vessels to shut down circulation in the feet. Skin tissue begins to die because of lack of oxygen and nutrients and due to the buildup of toxic products.

Symptoms

Symptoms of trench foot include:

- Reddening of the skin
- Numbness
- Leg cramps
- Swelling
- Tingling pain
- Blisters or ulcers
- Bleeding under the skin
- Gangrene (the foot may turn dark purple, blue, or gray)

First Aid

Workers suffering from trench foot should:

- Remove shoes/boots and wet socks.
- Dry their feet.
- Avoid walking on feet, as this may cause tissue damage.
- Seek medical attention if necessary.

Chilblains

Chilblains are caused by the repeated exposure of skin to temperatures just above freezing to as high as 60 degrees F. The cold exposure causes damage to the capillary beds (groups of small blood vessels) in the skin. This damage is permanent and the redness and itching will return with additional exposure. The redness and itching typically occurs on cheeks, ears, fingers, and toes.

Symptoms

Symptoms of chilblains include:

- Redness
- Itching
- Possible blistering
- Inflammation
- Possible ulceration in severe cases

First Aid

Workers suffering from chilblains should:

- Avoid scratching
- Slowly warm the skin
- Use corticosteroid creams to relieve itching and swelling
- Keep blisters and ulcers clean and covered

Wildfire Smoke

The most common symptoms of wildfire smoke exposure include:

- **Eyes:** burning sensations, redness, and tearing of the eyes caused by irritation and inflammation that can temporarily impair vision

- **Respiratory:** Cough; difficulty breathing; wheezing; shortness of breath, particularly when accompanied by greater use of accessory muscles; asthma attack; runny nose; sore throat; sinus pain or pressure; or phlegm.
- **Cardiovascular:** Chest pain or discomfort; Fast or irregular heartbeat; Feeling weak, light-headed, faint, or dizzy; or Pain or discomfort in the jaw, neck, or back.
- **Symptoms concerning for a stroke:** Sudden numbness or weakness in the face, arm, or leg, especially on one side of the body; Sudden confusion, trouble speaking, or difficulty understanding speech; Sudden trouble seeing in one or both eyes; Sudden trouble walking, dizziness, loss of balance, or lack of coordination; or Sudden severe headache with no known cause.
- **Headache, fatigue, or tiredness.**

Appendix D: National Weather Service Definitions of Weather Watches, Warnings, and Advisories

Winter Weather Advisory: A winter weather advisory is issued for any amount of freezing rain, or when 2 to 4 inches of snow (alone or in combination with sleet and freezing rain), is expected to cause a significant inconvenience, but not serious enough to warrant a warning.

Winter Storm Watch: A winter storm watch is issued when there is the potential for significant and hazardous winter weather within 48 hours. It does not mean that significant and hazardous winter weather will occur it only means it is possible.

Significant and hazardous winter weather is defined as a combination of the following criteria: 5 inches or more of snow/sleet within a 12-hour period or 7 inches or more of snow/sleet within a 24-hour period; enough ice accumulation to cause damage to trees or powerlines, a life threatening or damaging combination of snow and/or ice accumulation with wind.

Winter Storm Warning: A winter storm warning is issued when a significant combination of hazardous winter weather is occurring or imminent.

Blizzard Warning: A blizzard warning is issued when the following conditions are occurring or expected within the next 12 to 18 hours: snow and/or blowing snow reducing visibility to 1/4 mile or less for 3 hours or longer and sustained winds of 35 mph or greater or frequent gusts to 35 mph or greater.

Ice Storm Warning: ¼ inch or more of ice accumulation.

Hurricane Watch: A hurricane watch is issued when a tropical cyclone containing winds of 64 kt (74 mph) or higher poses a possible threat, generally within 48 hours. These winds may be accompanied by storm surge, coastal flooding, and/or river flooding.

Hurricane Warning: A hurricane warning is issued when sustained winds of 64 kt (74 mph) or higher associated with a tropical cyclone are expected in 36 hours or less. These winds may be accompanied by storm surge, coastal flooding, and/or river flooding.

Flood Watch: A flood watch is issued when conditions are favorable for flooding. It does not mean flooding will occur, but it is possible. The flood watch will note if flash flooding caused by excessive rainfall is also possible.

Flash Flood Warning: A flash flood warning is issued when flash flooding is imminent or occurring.

Flood Warning: A flood warning is issued when flooding is imminent or occurring.