Accident prevention guide:
Campgrounds

Campground - Accident Prevention Guide – Table of Contents

Please customize this accident prevention guide according to your workplace. Also, your written accident prevention program can only be effective if it is put into practice!

Campground - Accident Prevention Guide

1. State and Federal Posters

● Statutes and regulations enforced by agencies within the Department of Labor require that posters or notices be posted in the workplace. Please note that posting requirements vary by statute; that is, not all employers are covered by each of the Department's statutes and thus may not be required to post a specific notice. For information on coverage, visit the Employment Laws Assistance for Workers and Small Business (elaws) Poster Advisor.
http://webapps.dol.gov/elaws/posters.htm

● Many states have additional posting requirements; please consult your state department of labor for specific information.

2. OSHA Guidelines

● Recordkeeping

OSHA's regulation at 29 CFR Part 1904 requires employers with more than 10 employees, in most industries, to keep records of occupational injuries and illnesses at their establishments. Employers covered by these rules must record each recordable employee injury and illness on an OSHA Form 300, which is the "Log of Work-Related Injuries and Illnesses," or equivalent. The records must be maintained at the worksite for at least five years. (29 CFR 1904.7)
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9638

Employers must also prepare a supplementary OSHA Form 301 "Injury and Illness Incident Report" or equivalent (First Report of Injury) that provides additional details about each case recorded on the OSHA Form 300.

At the end of each year, employers are required to prepare a summary report of all injuries and illnesses on the OSHA Form 300A, which is the "Summary of Work-Related Injuries and Illnesses," and post the form in a visible location in the workplace from February 1 to April 30. If the campground has more than one location, it must post the form in each of its locations. (29 CFR 1904.32)
https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=12776

Injury and Illness Recordkeeping Forms – 300, 300A and 301 are available at:
https://www.osha.gov/recordkeeping/RKforms.html

● Severe Injury Reporting

All employers under OSHA jurisdiction must report any worker fatality within 8 hours and any amputation, loss of an eye, or hospitalization of a worker within 24 hours. This includes employers who are exempt from routinely keeping OSHA records due to company size or industry.

To make a report:

- ◊ Call the nearest OSHA office - https://www.osha.gov/html/RAmap.html
- ◊ Call the OSHA 24-hour hotline at 1-800-321-6742 (OSHA)
- ◊ Report online - https://www.osha.gov/pls/ser/serform.html

Be prepared to supply: Business name; names of employees affected; location and time of the incident, brief description of the incident; contact person and phone number.

Establishments located in states that operate their own safety and health programs (twenty-six states, Puerto Rico, and the Virgin Islands have OSHA-approved State Plans) have also implemented the new reporting requirements. Severe

Injury Reporting information for the State Plan States is available at the following website:
https://www.osha.gov/recordkeeping2014/state_adoption_table.html

● **Training Records**

A record of all safety and health training should be maintained. Documentation will provide an answer to questions in the event of a serious injury or illness. There are training requirements for general industry which are identified in Title 29, Code of Federal Regulations Part 1910. Additional training requirements may appear in certain other standards (ANSI, NFPA, etc.) and are adopted by reference in Part 1910 and are therefore mandatory.
https://www.osha.gov/Publications/osha2254.pdf

3. Compressed Gases

Hazards associated with compressed gases include oxygen displacement, fires, explosions, toxic gas exposures, as well as the physical hazards associated with high pressure systems. Special storage, use, and handling precautions are necessary in order to control these hazards.

Individuals using compressed gases must be trained in the safe use of the material and pressurized systems. General requirements for their storage, use and handling include the following:

◊ Always transport cylinders with the safety cap installed and use a cylinder cart. Do not roll them by hand along the floor or transport them on forklifts.
◊ Always store cylinders upright and secure them using an approved lock-down device.
◊ Oxygen and fuel gas cylinders should be separated by a minimum of 20 feet when in storage.
◊ Always use the correct pressure regulator for the specific gas.
◊ Do not store cylinders with the regulator in place. If the regulator fails, the entire contents of the cylinder may be discharged.
◊ Compressed gas cylinder valve covers should be in place when cylinders are not in use.
◊ Compressed Gas Association (CGA) fittings differ for inert gases (e.g., He, Ar, N2), flammable gases (e.g., H2) and oxidizers (e.g., O2, N20)
◊ Compressed gas cylinders, which contain acutely toxic gases, must be stored in a designated area
◊ All compressed gas cylinders must be clearly marked with the correct chemical name
◊ All cylinders should be labeled to indicate if the container is full or empty.
◊ Employees should be prohibited from using compressed gases (air) to clean clothing or work surfaces.

https://www.osha.gov/SLTC/compressedgasequipment/standards.html

4. Confined Space

Many workplaces contain areas that are considered "confined spaces" because while they are not necessarily designed for people, but are large enough for workers to enter and perform certain jobs. A confined space also has limited or restricted means for entry or exit and is not designed for continuous occupancy. Confined spaces include, but are not limited to: tanks, vessels, silos, storage bins, hoppers, vaults, pits, manholes, tunnels, equipment housings, ductwork, pipelines, etc. (29 CFR 1910.146)
https://www.osha.gov/SLTC/confinedspaces/hazards_solutions.html

5. Electrical Safety

Electrical hazards can cause burns, shocks and electrocution (death).

◊ Assume that all overhead wires are energized at lethal voltages. Never assume that a wire is safe to touch even if it is down or appears to be insulated.
◊ Never operate electrical equipment while you are standing in water.

◊ Never repair electrical cords or equipment unless qualified and authorized.
◊ Have a qualified electrician inspect electrical equipment that has gotten wet before energizing it.
◊ If working in damp locations, inspect electric cords and equipment to ensure that they are in good condition and free of defects, and use a ground-fault circuit interrupter (GFCI).
◊ Always use caution when working near electricity.

The electrical installation and electrical hook-up provided travel trailers, and other similar units shall be in accordance with the provisions of local electrical ordinances, or if no such ordinance exists, in accordance with the provisions of the National Electrical Code (NEC), applicable at the time of installation.

Permanent wiring should be installed where power is required for a duration of time to supply electrical equipment (i.e. power to a shed, outdoor accent lighting that will be up all summer, a/c units, ponds, etc.). All electrical equipment installed outdoors must be rated for the environmental conditions to which it is exposed.

Over current devices (fuses or breakers) shall not exceed the current ratings of the conductors, cables and equipment that they protect. #14 gauge electrical conductor is rated for 15 amps. #12 gauge electrical conductor is rated for 20 amps.

All exterior 125 volt, single phase 15- and 20-ampere receptacles should have listed GFCI protection, (Ground-fault circuit-interrupter protection for personnel).

6. Emergency Action Plan

The objective of an Emergency Action Plan is to comply with the Occupational Safety and Health Administration's (OSHA) Emergency Action Plan Standard, 29 CFR 1910.38, and to prepare employees for dealing with emergency situations. This plan is designed to minimize injury and loss of human life and company resources by training employees, procuring and maintaining necessary equipment, and assigning responsibilities. The plan should identify all emergencies that may reasonably be expected to occur at campground locations. This may include:

◊ Fire Reporting
◊ Evacuation Procedures
◊ Explosion
◊ Weather
◊ Bomb Threat
◊ Chemical Spill / Leak
◊ Violence
◊ Medical Emergencies

https://www.osha.gov/SLTC/etools/evacuation/eap.html

7. Fire Prevention

Fire extinguishers may only be used if the fire is small, there is safe access to an exit, and if a second person is available to assist. Types of fire extinguishers: Follow all state and/or local regulations regarding the type (e.g., type ABC for most applications and type K for commercial kitchens) and size of fire extinguisher, physical placement (mounting height, distance between), frequency of visual inspection, and frequency of servicing.

Portable fire extinguishers should be visually inspected on a monthly basis by employees. An annual inspection and maintenance check should be completed by a trained and certified service provider. The inspection should be recorded on a tag or label attached to each extinguisher.

Hazardous materials, such as flammable liquids, combustible liquids, acids, bases and miscellaneous solvents, must be stored in documented locations. If the total volume of all hazardous materials on the property in cans or bottles exceeds 10 gallons, then the hazardous materials must be stored in a listed and approved flammable storage cabinet. Hazardous materials should be stored in their original containers to maintain the product information and safety instructions. Safety Data Sheets (SDSs) will be maintained on all hazardous materials.

Under no circumstances shall an employee attempt to fight a fire that has passed the incipient stage (that which can be put out with a single fire extinguisher), nor shall any employee attempt to enter a burning building to conduct search and rescue. These actions are to be left to emergency services professionals who have the necessary training, equipment, and experience (such as the fire department or emergency medical professionals). Untrained individuals may endanger themselves and/or those they are trying to rescue.
https://www.osha.gov/SLTC/etools/evacuation/portable_required.html (29 CFR 1910.157)

8. First Aid

First aid is emergency care provided for injury or sudden illness before emergency medical treatment is available. The first-aid provider in the workplace is someone who is trained in the delivery of initial medical emergency procedures, using a limited amount of equipment to perform a primary assessment and intervention while awaiting arrival of emergency medical service (EMS) personnel.

The OSHA First Aid standard (29 CFR 1910.151) requires trained first-aid providers at all workplaces of any size if there is no "infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees."

If an employee is expected to render first aid as part of his or her job duties, the employee is covered by the requirements of the Occupational Exposure to Bloodborne Pathogens standard (29 CFR 1910.1030). This standard includes specific training requirements.

It is advisable for the employer to give a specific person the responsibility for choosing the types and amounts of first-aid supplies and for maintaining these supplies. The supplies must be adequate, should reflect the kinds of injuries that occur, and must be stored in an area where they are readily available for emergency access. An automated external defibrillator (AED) should be considered when selecting first-aid supplies and equipment.
https://osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9806

9. Hazard Communications

OSHA's Hazard Communications Standard, 29 CFR 1910.1200, addresses the informational needs of employers and workers with regard to chemicals. All employers with hazardous chemicals in their workplaces must have labels and safety data sheets (SDS) for their exposed workers, and train them to handle the chemicals appropriately.

A written hazard communication program must be prepared including a list of the hazardous chemicals in the workplace.
https://www.osha.gov/Publications/OSHA3695.pdf

10. Lockout/Tagout (Control of Hazardous Energy)

Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other sources in machines and equipment can be hazardous to workers. During the servicing and maintenance of machines and equipment, the unexpected startup or release of stored energy can result in serious injury or death to workers.

Proper lockout/tagout (LOTO) practices and procedures safeguard workers from the release of hazardous energy. The OSHA standard for The Control of Hazardous Energy (Lockout/Tagout) (29 CFR 1910.147) for general industry, outlines specific action and procedures for addressing and controlling hazardous energy during servicing and maintenance of machines and equipment.

Employers are also required to train each worker to ensure that they know, understand, and are able to follow the applicable provisions of the hazardous energy control procedures. Workers must be trained in the purpose and function of the energy control program and have the knowledge and skills required for the safe application, usage and removal of the energy control devices.
https://www.osha.gov/SLTC/controlhazardousenergy/index.html

11. Material Handling

Back injuries are one of the most common problems we can have with our body. They affect all types of people and back injuries occur on all types of jobs.
Use proper lifting and carrying techniques:
To lift:

- ◊ Keep the object close to your body
- ◊ Bend you knees, keep your back straight and slowly straighten your legs
- ◊ Bring your back to a full, upright position

There are also rules for carrying objects:

- ◊ Make sure that you can see
- ◊ Move slowly and smoothly
- ◊ Always turn your feet, never twist your back
- ◊ Just reverse the steps you used to lift the object when you put it down

Use material handling devices whenever possible such as: forklifts, hand trucks, carts, and pallet jacks.
Some loads are too big or heavy for one person. These require team lifting, which also requires proper techniques in order to be safe.

- ◊ Designate a person to lead the lift
- ◊ Lift at the same time
- ◊ Keep the load level
- ◊ Slowly unload together

http://www.cdc.gov/niosh/docs/2007-131/pdfs/2007-131.pdf

12. Motor Vehicle Operations

Only licensed and authorized drivers' should operate motor vehicles!
All laws and regulations should be strictly followed including proof of a valid Drivers' / operator's license
A seat belt is to be used at all times by the driver and passenger(s)

Vehicles should not be operated if impaired by alcohol or any drug, including medications
Operators should be prohibited from:

- ◊ Using mobile devices to text message, receive or respond to email, or access the internet
- ◊ Smoking in or near vehicles
- ◊ Using radio/audio headsets or ear buds while operating a vehicle
- ◊ Using vehicles for personal business such as unauthorized home-to-work travel

https://www.osha.gov/SLTC/motorvehiclesafety/index.html

13. Off Road / Utility Vehicles and Golf Carts

All laws and regulations should be strictly followed including proof of a valid Drivers' / operator's license.

Operators should complete training and be certified prior to operation of vehicles, including:

- ◊ Safe operating practices and motor vehicle traffic regulations

Operators should always consider the terrain, weather conditions, and existing pedestrian and vehicular traffic, which may affect the ability to operate the vehicle safely

Any time a vehicle is unattended, the ignition should be turned off, and the key will be removed from the ignition and kept in the possession of the authorized operator

No passengers should be allowed to be transported in the truck beds or on the sides of a vehicle

Vehicles should be properly maintained at all times

- ◊ A pre-trip inspection should be completed prior to the use of vehicles including: tires, lighting, brakes, fluid leaks, manufacturers' operator warning labels, and properly secured equipment and supplies
- ◊ A manager should be contacted immediately to report any deficiencies that cannot be corrected

Appropriate safety equipment should be worn based on the type of vehicle. This would include:

- ◊ A helmet
- ◊ Eye Protection
- ◊ Gloves
- ◊ Boots – preferably over the calf
- ◊ Protective clothing such as long sleeved shirt and sturdy pants

Operators should be prohibited from:

- ◊ Using mobile devices to text message, receive or respond to email, or access the internet
- ◊ Smoking in or near vehicles
- ◊ Using radio/audio headsets or ear buds while operating a vehicle
- ◊ Using vehicles for personal business such as unauthorized home-to-work travel

14. Outdoor Safety

● Heat Illness

Under OSHA law, employers are responsible for providing workplaces free of known safety hazards. This includes protecting workers from extreme heat. An employer with workers exposed to high temperatures should establish a complete heat illness prevention program.

- ◊ Provide workers with water, rest and shade.
- ◊ Allow new or returning workers to gradually increase workloads and take more frequent breaks as they acclimatize, or build a tolerance for working in the heat.
- ◊ Plan for emergencies and train workers on prevention.
- ◊ Monitor workers for signs of illness.

https://www.osha.gov/SLTC/heatillness/index.html

● Sun Exposure

Anyone working outdoors is exposed to the sun's ultraviolet (UV) rays, even on cloudy days. UV rays are a part of sunlight that is an invisible form of radiation. There are three types of UV rays. UVA is believed to damage connective tissue and increase the risk for developing skin cancer. UVB penetrates less deeply into the skin, but can still cause some types of skin cancer. Natural UVC is absorbed by the atmosphere and does not pose a risk.
http://www.cdc.gov/niosh/topics/sunexposure/

● Winter Weather

Outdoor work requires proper preparation, especially in severe winter weather conditions. Although OSHA does not

have a specific standard that covers working in cold environments, employers have a responsibility to provide workers with employment and a place of employment which are free from recognized hazards, including winter weather related hazards, which are causing or are likely to cause death or serious physical harm to them (Section 5(a)(1) of the Occupational Safety and Health Act of 1970). Employers should, therefore, train workers on the hazards of the job and safety measures to use, such as engineering controls and safe work practices, that will protect workers' safety and health.
https://www.osha.gov/dts/weather/winter_weather/beprepared.html

Plants, Insects and Snakes

● Poisonous Plants

Many native and exotic plants are poisonous to humans when ingested or if there is skin contact with plant chemicals. However, the most common problems with poisonous plants arise from contact with the sap oil of several native plants that cause an allergic skin reaction—poison ivy, poison oak, and poison sumac.
http://www.cdc.gov/niosh/topics/plants/default.html

● Venomous Spiders

Venomous spiders found in the United States include the black widow and the brown recluse. These spiders can be dangerous to outdoor workers. These spiders occasionally find their way inside structures or buildings and can also present a risk to indoor workers including machine operators, janitors, and cashiers. Spiders are usually not aggressive and most bites occur because a spider is trapped or unintentionally contacted. It is important for employers to educate their workers about their risk of exposure to venomous spiders, how they can prevent and protect themselves from spider bites, and what they should do if they are bitten.
http://www.cdc.gov/niosh/topics/spiders/default.html

● Venomous Snakes

Venomous snakes found in the United States include rattlesnakes, copperheads, cottonmouths/water moccasins, and coral snakes. They can be dangerous to outdoor workers including farmers, foresters, landscapers, groundskeepers, gardeners, painters, roofers, pavers, construction workers, laborers, mechanics, and any other workers who spend time outside. Although rare, some workers with a severe allergy to snake venom may be at risk of death if bitten. It has been estimated that 7,000–8,000 people per year receive venomous bites in the United States, and about 5 of those people die. The number of deaths would be much higher if people did not seek medical care. It is important for employers to train their workers about their risk of exposure to venomous snakes, how they can prevent and protect themselves from snake bites, and what they should do if they are bitten.
http://www.cdc.gov/niosh/topics/snakes/default.html

● Insects and Scorpions

Stinging or biting insects or scorpions can be hazardous to outdoor workers. Stinging or biting insects include bees, wasps, hornets, and fire ants. The health effects of stinging or biting insects or scorpions range from mild discomfort or pain to a lethal reaction for those workers allergic to the insect's venom. Anaphylactic shock is the body's severe allergic reaction to a bite or sting and requires immediate emergency care. Thousands of people are stung by insects each year, and as many as 90–100 people in the United States die as a result of allergic reactions. This number may be underreported as deaths may be mistakenly diagnosed as heart attacks or sunstrokes or may be attributed to other causes. It is important for employers to train their workers about their risk of exposure to insects and scorpions, how they can prevent and protect themselves from stings and bites, and what they should do if they are stung or bitten.
http://www.cdc.gov/niosh/topics/insects/default.html

● Mosquito-Borne Diseases

Mosquito-borne diseases are those spread by the bite of an infected mosquito. Diseases that are spread to people by mosquitoes include Zika virus, West Nile virus, Chikungunya virus, dengue, and malaria. Employers should protect workers and workers should protect themselves from diseases spread by mosquitoes. Although most people do not become sick after a bite from an infected mosquito, some people have a mild, short-term illness or (rarely) severe or long-term illness. Severe cases of mosquito-borne diseases can cause death.
http://www.cdc.gov/niosh/topics/outdoor/mosquito-borne/default.html

● Tick-Borne Diseases

Tick-borne pathogens can be passed to humans by the bite of infected ticks. Ticks can be infected with bacteria, viruses, or parasites. Some of the most common tick-borne diseases in the United States include: Lyme disease, babesiosis, ehrlichiosis, Rocky Mountain Spotted Fever, anaplasmosis, Southern Tick-Associated Rash Illness, Tick-Borne Relapsing Fever, and tularemia. Other tick-borne diseases in the United States include: Colorado tick fever, Powassan encephalitis, and Q fever. Lyme disease is the most commonly reported tick-borne disease in the United States. In 2010, more than 22,500 confirmed and 7,500 probable cases of Lyme disease were reported to the Centers for Disease Control and Prevention (CDC).

Outdoor workers are at risk of exposure to tick-borne diseases if they work at sites with ticks. Worksites with woods, bushes, high grass, or leaf litter are likely to have more ticks. Outdoor workers in most regions of the United States should be extra careful to protect themselves in the spring, summer, and fall when ticks are most active. Ticks may be active all year in some regions with warmer weather.
http://www.cdc.gov/niosh/topics/tick-borne/default.html

● Lyme Disease

Lyme disease is the most commonly reported tick-borne disease in the United States. In 2010, more than 22,500 confirmed and 7,500 probable cases of Lyme disease were reported to the Centers for Disease Control and Prevention (CDC). Lyme disease is passed to humans by the bite of black-legged ticks (also known as deer ticks in the eastern United States) and western black-legged ticks infected with the bacterium *Borrelia burgdorferi*. The Lyme disease bacterium normally lives in mice, squirrels, and other small mammals.

Outdoor workers are at risk of Lyme disease if they work at sites with infected ticks. In 2010, the highest number of confirmed Lyme disease cases were reported from New Jersey, Pennsylvania, Wisconsin, New York, Massachusetts, Connecticut, Minnesota, Maryland, Virginia, New Hampshire, Delaware, and Maine. U.S. workers in the northeastern and north-central States are at highest risk of exposure to infected ticks. Ticks may also transmit other tick-borne diseases to workers in these and other regions of the country. Worksites with woods, bushes, high grass, or leaf litter are likely to have more ticks. Outdoor workers should be extra careful to protect themselves in the late spring and summer when young ticks are most active.
http://www.cdc.gov/niosh/topics/lyme/default.html

15. Personal Protective Equipment (PPE)

Personal protective equipment, commonly referred to as "PPE", is equipment worn to minimize exposure to serious workplace injuries and illnesses. These injuries and illnesses may result from contact with chemical, radiological, physical, electrical, mechanical, or other workplace hazards. Personal protective equipment may include items such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, or coveralls, vests and full body suits.

When engineering, work practice, and administrative controls are not feasible or do not provide sufficient protection, employers must provide personal protective equipment to their workers and ensure its proper use. Employers are also required to train each worker required to use personal protective equipment to know:

- ◊ When it is necessary
- ◊ What kind is necessary
- ◊ How to properly put it on, adjust, wear and take it off
- ◊ The limitations of the equipment
- ◊ Proper care, maintenance, useful life, and disposal of the equipment

https://www.osha.gov/SLTC/personalprotectiveequipment/

16. Propane

Propane (also called LPG—liquefied petroleum gas—or LP gas) is a widely used fuel. It is transported and stored as a liquid under pressure and is usually used as a gas. Severe freeze burn or frostbite can result if propane liquid comes in contact with your skin. The liquid propane is turned into a gas inside a tank or a cylinder. In its natural form, propane is colorless and odorless. To make propane easier to detect in the event of a leak or spill, manufacturers deliberately add a chemical compound to give it a distinctive smell.

Propane is flammable when mixed with air (oxygen) and can be ignited by many sources, including open flames, smoking materials, electrical sparks, and static electricity.

Propane vapors are heavier than air. For this reason, they may accumulate in low-lying areas such as basements, crawl spaces, and ditches, or along floors. However, air currents can sometimes carry propane vapors elsewhere within a building.

If you smell gas:

- ◊ No flames or sparks! Do not operate lights, appliances, telephones or cell phones.
- ◊ Leave the area immediately!
- ◊ Shut off the gas – turn off the main gas supply valve on your propane tank, if it is safe to do so.
- ◊ Report the leak from a nearby building away from the gas leak.
- ◊ Do not return to the building or area until it is determined that it is safe to do so.
- ◊ Get the system checked by a propane dealer or qualified service technician to ensure that it is leak-free.

http://www.amerigas.com/pdfs/AmeriGas-Propane-Safety-Brochure.pdf

17. Slips, Trips and Falls

● Slips

Slips happen where there is too little friction or traction between the footwear and the walking surface. Common causes of slips are:

- ◊ Wet or oily surfaces
- ◊ Occasional spills
- ◊ Weather hazards
- ◊ Loose, unanchored rugs or mats
- ◊ Flooring or other walking surfaces that do not have same degree of traction in all areas

● Trips

Trips happen when your foot collides (strikes, hits) an object causing you to lose balance and, eventually fall. Common causes of tripping are:

◊ Obstructed view
◊ Poor lighting
◊ Clutter in your way
◊ Wrinkled carpeting
◊ Uncovered cables
◊ Bottom drawers not being closed
◊ Uneven (steps, thresholds) walking surfaces

Both slips and trips result from some a kind of unintended or unexpected change in the contact between the feet and the ground or walking surface. This shows that good housekeeping, quality of walking surfaces (flooring), selection of proper footwear, and appropriate pace of walking are critical for preventing fall accidents.

● **Housekeeping**

Good housekeeping is the first and the most important (fundamental) level of preventing falls due to slips and trips. It includes:

◊ Cleaning all spills immediately
◊ Marking spills and wet areas
◊ Mopping or sweeping debris from floors
◊ Removing obstacles from walkways and always keeping them free of clutter
◊ Securing (tacking, taping, etc.) mats, rugs and carpets that do not lay flat
◊ Always closing file cabinet or storage drawers
◊ Covering cables that cross walkways
◊ Keeping working areas and walkways well lit
◊ Replacing used light bulbs and faulty switches

Without good housekeeping practices, any other preventive measures such as installation of sophisticated flooring, specialty footwear or training on techniques of walking and safe falling will never be fully effective.

● **Flooring**

Changing or modifying walking surfaces is the next level of preventing slip and trips. Recoating or replacing floors, installing mats, pressure-sensitive abrasive strips or abrasive-filled paint-on coating and metal or synthetic decking can further improve safety and reduce risk of falling. However, it is critical to remember that high-tech flooring requires good housekeeping as much as any other flooring. In addition, resilient, non-slippery flooring prevents or reduces foot fatigue and contributes to slip prevention measures.

● **Footwear**

In workplaces where floors may be oily or wet or where workers spend considerable time outdoors, prevention of fall accidents should focus on selecting proper footwear. Since there is no footwear with anti-slip properties for every condition, consultation with manufacturers' is highly recommended. Properly fitting footwear increases comfort and prevents fatigue which, in turn, improves safety for the employee.

● **Fall Protection**

Within the 29 CFR 1910 General Industry Standards OSHA requires some form of fall protection for employees working at heights greater than four (4) feet. There are numerous other OSHA standards requiring fall protection at other heights: some are lower, some are higher and some only apply (or do not apply) in certain situations.

◊ 1910.23(c) requires a standard guardrail or equivalent to be installed along unprotected edges of open-sided floors, platforms, and runways greater than four (4) feet above the floor or lower level.

◊ 1910.23(c)(3) requires a standard guardrail be installed along open sides of any open-sided floor, walkway, platform, or runway located above or along the side of dangerous equipment, pickling or galvanizing tanks, degreasing units, and similar hazards, regardless of its height.

◊ 1910.23(d)(1) requires a stair rail to be installed on each open side of any flight of stairs having four or more risers; on many smaller industrial stairs with just a few risers, this could easily be less than four (4) feet high.

https://www.osha.gov/SLTC/fallprotection/standards.html

18. Tools and Equipment

● Hand and Power Tools

Hand and power tools are a common part of our everyday lives and are present in nearly every industry. These tools help us to easily perform tasks that otherwise would be difficult or impossible. However, these simple tools can be hazardous and have the potential for causing severe injuries when used or maintained improperly. Special attention toward hand and power tool safety is necessary in order to reduce or eliminate these hazards.

Employees who use hand and power tools and are exposed to the hazards of falling, flying, abrasive, and splashing objects, or to harmful dusts, fumes, mists, vapors, or gases must be provided with the appropriate personal protective equipment. All electrical connections for these tools must be suitable for the type of tool and the working conditions (wet, dusty, flammable vapors). When a temporary power source is used for construction a ground-fault circuit interrupter should be used.

Five basic safety rules can help prevent hazards associated with the use of hand and power tools:

◊ Keep all tools in good condition with regular maintenance.
◊ Use the right tool for the job.
◊ Examine each tool for damage before use and do not use damaged tools.
◊ Operate tools according to the manufacturers' instructions.
◊ Provide and use properly the right personal protective equipment (PPE).

https://www.osha.gov/Publications/osha3080.pdf

● Ladders

Many of the basic safety rules that apply to most tools also apply to the safe use of a ladder:

◊ Before using a ladder, inspect it to confirm it is in good working condition. Ladders with loose or missing parts must be rejected. Rickety ladders that sway or lean to the side must be rejected.
◊ The ladder you select must be the right size for the job. The Duty Rating of the ladder must be greater than the total weight of the climber, tools, supplies, and other objects placed upon the ladder. The length of the ladder must be sufficient so that the climber does not have to stand on the top rung or step.
◊ Only one person at a time is permitted on a ladder unless the ladder is specifically designed for more than one climber (such as a Trestle Ladder).
◊ Factors contributing to falls from ladders include haste, sudden movement, lack of attention, the condition of the ladder (worn or damaged), the user's age or physical condition, or both, and the user's footwear.
◊ When climbing a ladder, it is safest to utilize Three Points-of-Contact because it minimizes the chances of slipping and falling from the ladder.

https://www.osha.gov/Publications/portable_ladder_qc.html

Lawn Maintenance and Landscaping

● **Chainsaws**

Most chain saw injuries involve contact with the cutting chain, which results in severe injury to the hands, legs, feet and head. Preventing such injuries in the workplace requires a joint effort on the part of both employee and employer. Employees should use proper personal protective equipment, chain saws with the latest safety equipment and proper techniques when cutting. Employers must provide chain saw safety training and supervision.

Before using a chain saw it is important to read the owner's manual and familiarize yourself with safe operation. Giving a chain saw to an inexperienced worker without proper training is an injury waiting to happen. Before each use, check that:

- ◊ Chain saw is in good general condition (no leaks or damage)
- ◊ The throttle, safety throttle lock and stop switch operate correctly
- ◊ The chain brake works
- ◊ The chain is lubricated, sharp and tensioned correctly
- ◊ The sprocket and bar are in good condition
- ◊ The idle is properly adjusted

When starting a chain saw, it should always be started on the ground or a well-supported and stable surface. Drop starting a chain saw is dangerous and prohibited by OSHA. A drop start is done by thrusting the saw down with your left hand and pulling the starter cord up with your right hand.

The chain saw must be shut down whenever a saw is carried; whenever possible use the bar cover. A saw should be carried by its front handle with the chain bar pointing to the rear. Do not carry the chain saw on your shoulder. If you lose your balance, you will not be able to use your arm to break your fall.

Kickback occurs when the upper portion of the tip comes in contact with another object or the chain is pinched in a cut. As a result the chain saw will violently jump or kick back towards the operator

To minimize injury, workers need proper safety equipment, (29 CFR 1910.266). The equipment listed below must be worn at all times during chain saw activities:

- ◊ Hand protection
- ◊ Hard hat
- ◊ Safety glasses and face shield
- ◊ Hearing protection
- ◊ Leg protection
- ◊ Safety footwear

https://www.grainger.com/content/qt-111-chain-saw-safety

● **Grass Trimmers**

Most injuries when using grass trimmers include: lacerations to the fingers, hands, and legs and foreign objects, lacerations, and contusions to the eyes. Other injuries included strains and sprains. Most grass trimmer injuries are avoidable and are due to operator inexperience or inattentive or improper handling.
Operating precautions when using trimmers include:

- ◊ Always wear safety glasses or goggles and gloves when using a grass trimmer.
- ◊ Wear long pants and sturdy shoes (i.e., no sneakers or sandals). Do not wear loose clothing.
- ◊ Always start a gasoline-powered grass trimmer outside. Do not operate a gasoline-powered grass trimmer

inside an enclosed space (i.e., sheds or garages) where carbon monoxide exhaust gas can accumulate.

◊ Prior to starting, inspect the work area and pick up all loose objects (i.e., sticks, stones, pieces of glass/metal, etc.) that could be thrown by the grass trimmer.

◊ Always operate the grass trimmer with the cutting head below the waist. Avoid overreaching.

◊ Exercise caution when trimming grass near trees or shrubs with low hanging branches.

◊ Never fuel a gasoline-powered grass trimmer when the engine is hot. Use a rag to wipe up fuel spills.

◊ Shut off the grass trimmer and disconnect the spark plug wire or electric cord before performing mechanical adjustments, maintenance, or repairs or clearing/unclogging the underside of the cutting attachment and shield.

◊ Maintain the grass trimmer according to the manufacturer's instructions, including cleaning, lubricating, and storage.

http://safety.ucanr.org/files/3142.pdf

● Lawn Mowers

Lawn mowers are available in two types: walk-behind mowers and riding mowers. Though the method of control is different, both types of mowers present similar hazards to operators, bystanders, and animals that may be in the immediate vicinity. Rotary blades located underneath the mower rotate approximately 200 miles per hour or 300 feet per second. Though somewhat protected with guards, all mowers are potentially dangerous when the operator does not use good judgment or fails to follow safety procedures.

Walk-behind mowers can be extremely dangerous to operators and bystanders when safety guards are removed, safety shut-down devices are disabled, and when mowers are operated in unsafe manner or environment. Practice the following safety tips to prevent injury:

◊ Keep hands and feet away from the blade area while the mower is running.

◊ Never bypass the engine kill handle or remove shields when mowing.

◊ Mow back and forth along the side of a steep hill, never up and down the slope.

◊ Wear boots or shoes with good traction to avoid slipping and falling.

◊ Be careful when refueling a hot engine. Use a funnel to avoid spilling fuel. Clean up any fuel spills immediately.

◊ Never smoke while servicing, operating, and refueling a mower.

◊ Wear proper protection against flying debris and noise (long pants, hard shoes, safety glasses, ear plugs, etc.)

◊ Turn the power off and disconnect the spark plug wire from the spark plug before cleaning, inspecting, adjusting, or repairing the cutting blade.

◊ Don't run a gasoline powered mower inside a storage shed; this could cause carbon dioxide poisoning.

◊ Never leave a running mower unattended, especially when children are around.

◊ Don't mow a wet lawn. Losing control from slipping on rain-soaked grass is the leading cause of foot injury caused by power mowers.

Riding mowers are much more powerful than walk-behind mowers and move two to three times as fast. Drivers should treat riding mowers as they would larger tractors, using safe driving techniques and safety devices to avoid accidents. In addition to the safety tips listed for walk-behind mowers, riding mower operators should take additional precautions.

◊ Don't allow extra riders.

◊ Test drive the mower, and become familiar with it before engaging the mower blade.

◊ Don't drive too close to a creek or ditch, and be mindful of any obstructions.

◊ Mow up and down sloping terrain. Do not mow across a slope.

◊ Keep the mower in gear when going down slopes.

◊ Slow down when turning and when working on slopes.

◊ Don't operate a riding mower when under the influence of alcohol or other drugs that impair judgment.
◊ Don't let children operate riding mowers until they can safely steer, brake, and adjust gears, and until they have had proper instruction.

https://www.osha.gov/dte/grant_materials/fy09/sh-19503-09/mowing-trimming_safety_manual.pdf

● **Leaf Blowers**

Leaf blowers are loud and can produce air gusts in excess of 200 miles per hour, lifting small rocks and other objects into the air.

◊ Don't use the blower to clean yourself.
◊ Be aware of pedestrians and others in the area. Don't direct the blower toward bystanders.
◊ Wear eye protection such as goggles or safety glasses and ear plugs.
◊ With electric blowers, inspect all extension cords for cuts, nicks, scrapes, and exposed wire that could pose an electrical hazard. Replace damaged cords immediately.
◊ Don't operate electric blowers when conditions are wet or around water puddles.

19. Workplace Violence

Workplace violence is any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior that occurs at the work site. It ranges from threats and verbal abuse to physical assaults and even homicide. It can affect and involve employees, clients, customers and visitors. Homicide is currently the fourth-leading cause of fatal occupational injuries in the United States.

Nearly 2 million American workers report having been victims of workplace violence each year. Unfortunately, many more cases go unreported. Research has identified factors that may increase the risk of violence for some workers at certain worksites. Such factors include exchanging money with the public and working with volatile, unstable people. Working alone or in isolated areas may also contribute to the potential for violence. Providing services and care, and working where alcohol is served may also impact the likelihood of violence.

In most workplaces where risk factors can be identified, the risk of assault can be prevented or minimized if employers take appropriate precautions. One of the best protections employers can offer their workers is to establish a zero-tolerance policy toward workplace violence. This policy should cover all workers, patients, clients, visitors, contractors, and anyone else who may come in contact with company personnel.

By assessing their worksites, employers can identify methods for reducing the likelihood of incidents occurring. OSHA believes that a well-written and implemented workplace violence prevention program, combined with engineering controls, administrative controls and training can reduce the incidence of workplace violence in both the private sector and federal workplaces.

This can be a separate workplace violence prevention program or can be incorporated into an injury and illness prevention program, employee handbook, or manual of standard operating procedures. It is critical to ensure that all workers know the policy and understand that all claims of workplace violence will be investigated and remedied promptly.

http://www.cdc.gov/niosh/docs/96-100/develop.html

Additional Resources

Markel Insurance Risk Management Library
http://www.markelinsurance.com/risk-management-home

National Fire Protection Association (NFPA)
http://www.nfpa.org/

Occupational Safety and Health Standards – 1910 (OSHA)
https://osha.gov/pls/oshaweb/owastand.display_standard_group?p_toc_level=1&p_part_number=1910

Severe Weather Planning
https://www.ready.gov/severe-weather

The National Institute of Occupational Safety and Health (NIOSH)
http://www.cdc.gov/niosh/index.htm