

Avoiding Heat Stress

WHAT'S AT STAKE?

Any worker exposed to hot and humid conditions is at risk of heat illness, especially those doing heavy work tasks or using bulky protective clothing and equipment. Some workers might be at greater risk than others if they have not built up a tolerance to hot conditions, including new workers, temporary workers, or those returning to work after a week or more off. All workers are at risk during a heat wave.

WHAT'S THE DANGER?

Workers at risk of heat stress include outdoor workers and workers in hot environments such as firefighters, bakery workers, farmers, construction workers, miners, boiler room workers, factory workers, and others. Workers at greater risk of heat stress include those who are 65 years of age or older, are overweight, have heart disease or high blood pressure, or take medications that may be affected by extreme heat.

The main heat related illnesses are heat rash, heat stroke, heat exhaustion, and heat cramps.

Heat Rash. Heat rash is generally misunderstood to be an affliction for babies, but heat rash can affect adults, too, especially during hot, humid weather. Heat rash develops when blocked pores, or sweat ducts, trap perspiration under your skin.

Symptoms. Adults usually develop heat rash in skin folds where clothing causes friction. Symptoms include superficial blisters and can even present as deep, red lumps. Some forms of heat rash can feel extremely itchy.

Heat Cramps. Heat cramps are painful, brief muscle cramps where the muscles may spasm or jerk involuntarily. These cramps can begin during the activity in the heat, or may start several hours

later. Muscles that are most susceptible to heat cramps are those that are usually fatigued by heavy work such as calves, thighs and shoulders.

The exact cause of heat cramps is unknown, but medical professionals are able to boil it down to a chemical imbalance in the muscles—usually related to electrolytes. Electrolytes include various essential minerals, such as sodium, potassium, calcium and magnesium. They are involved in the chemical reactions of your muscles, and an imbalance can cause issues.

Symptoms. Someone who is experiencing heat cramps will feel muscle spasms that are painful, involuntary, brief, intermittent and self-limited (meaning, they go away on their own).

Heat Exhaustion. Heat exhaustion is a result of your body overheating and can cause heavy sweating, rapid pulse, dizziness and low blood pressure upon standing. Causes of heat exhaustion include exposure to high temperatures, particularly when combined with high humidity and vigorous physical activity.

Symptoms. Without prompt treatment, heat exhaustion can quickly lead to heat stroke, a life-threatening condition, so it is important to know the signs of someone who is likely suffering from heat exhaustion. Signs and symptoms may develop suddenly or over time and include cool, moist skin with goose bumps in the heat, heavy sweating, faintness, dizziness, fatigue, weak and rapid pulse, low blood pressure upon standing, headache, nausea and muscle cramps.

Heat Stroke. Heat stroke is the most serious form of heat injury and can occur if your body temperature rises to 104 Fahrenheit or higher. Heat stroke requires emergency treatment, and if left untreated, can quickly damage the brain, heart, kidneys and muscles. Damage to internal organs worsens the longer treatment is delayed, increasing your risk of serious complications or death.

While anyone can develop heat stroke, there are several factors that can increase the risk of illness such as age, exertion in hot weather, a lack of cool air or air conditioning, certain

medications and certain health conditions.

Symptoms. Heat stroke symptoms include high body temperature, altered mental state or behavior, alteration in sweating, nausea and vomiting, flushed skin, rapid breathing, racing heart rate and headache.

Causes of Heat-Related illnesses

Dehydration – to keep healthy, our body temperature needs to stay around 37°C. The body cools itself by sweating, which normally accounts for 70 to 80 per cent of the body's heat loss. If a person becomes dehydrated, they don't sweat as much and their body temperature keeps rising. Dehydration may happen after strenuous exercise (especially in hot weather), severe diarrhea or vomiting, drinking too much alcohol, taking certain medications (for example, diuretics) and not drinking enough water.

Lack of airflow – working in hot, poorly ventilated or confined areas.

Sun exposure – especially on hot days, between 11am and 3pm.

Hot and crowded conditions – people attending large events (concerts, dance parties or sporting events) in hot or crowded conditions may also experience heat stress that can result in illness.

Bushfires – exposure to radiant heat from bushfires can cause rapid dehydration and heat-related illness. Bushfires usually occur when the temperature is high, which adds to the risk.

Some drugs, such as ecstasy and speed, also raise the body's temperature, which can lead to heat stress.

HOW TO PROTECT YOURSELF

TREATMENT

Heat Rash

- Heat rash will usually clear on its own by cooling the skin and avoiding exposure to the heat that caused it. If symptoms such as increased pain, swelling, redness, or warmth extend for longer than a few days reach out to a doctor for specialized treatment.

Heat Cramps

- To treat heat cramps, begin with rest and a sports drink that includes electrolytes and salt or drink cool water. You can make your own salt solution by mixing a quarter to a half teaspoon of salt into a quart of water.

Usually, heat cramps will dissipate on their own, but if you begin to see conditions worsen and the patient becomes dizzy, nauseous, experiences shortness of breath and a fast heartbeat, you should see a doctor. Heat cramps often accompany a more serious heat-related illness: heat exhaustion.

Heat Exhaustion

- If you see someone who might be experiencing heat exhaustion, instruct them to halt all activity and rest, move to a cooler place and drink cool water or a sports drink.

A doctor should be contacted if signs and symptoms worsen or if they don't improve within one hour. A patient will need immediate cooling and urgent medical attention if their core body temperature reaches 104 Fahrenheit or higher. Those who exhibit confusion, agitation, loses consciousness or is unable to drink must also be taken to see a medical professional as soon as possible.

Heat Stroke

- Someone who is suffering from a heat stroke must take immediate action to cool down their body while waiting for emergency treatment. To do this, move to shade or indoors, remove excess clothing and cool with whatever means available (put in a cool tub of water or a cool shower,

spray with a garden hose, sponge with cool water, fan while misting with cool water, or place ice packs or cold, wet towels on the person's head, neck, armpits and groin).

Employer Responsibility

Prevention of heat stress in workers is important. Employers should provide training to workers so they understand what heat stress is, how it affects their health and safety, and how it can be prevented.

Heat can cause more than just discomfort. Exposure to high heat and high humidity can be life threatening. Employers should make sure workers know the signs, symptoms and appropriate first-aid procedures for serious heat illnesses.

Preventing Heat Illness: What employers should do?

Provide adequate amount of drinking water. – As much as one quart per worker per hour. Provide **EASY** access to this water!! Providing liquids like Gatorade, with electrolytes in it, is also important to replace what is lost through sweat.

Provide regular rest breaks or rest periods. Rest breaks should be taken in a cool area. Employers should provide rest breaks in accordance with how hot the work environment is, and how heavy the work load. Workers in hotter work environments and with heavier workloads should be provided with more frequent rest breaks.

Increase the air circulation. Use air conditioning, fans and general ventilation to cool down the work area and cool off workers.

Alert workers to the early signs of heat-related illness. Allow workers who experience these early signs to take a break. Heat-related illnesses can come on very rapidly and can be fatal.

New, or acclimatized workers should not be allowed to work full-time, right away, in a high heat area. It takes about one week for

the body to adjust to working in the heat.

OSHA has the following recommendations to prevent the ill – effects of heat stress.

- Protect new workers during the first two weeks on the job. Make sure they take plenty of rest breaks and drink enough fluids.
- Never leave workers alone when they complain of heat-related symptoms. Their conditions can worsen quickly! Take them to a cool location and provide first aid. Even a brief delay in first aid can make the difference between life and death.
- Temperatures do not have to be extremely hot to cause heat stroke in workers. Remember, total heat stress is a combination of environmental heat and workload. Air temperatures in the 80s (°F) are high enough to result in a Heat Index value of 90°F. They are also high enough to kill some workers.
- Even experienced workers are vulnerable to heat-related illness when the weather becomes warmer. Throughout the first week of warmer conditions, treat all workers as if they need to adapt to working in the heat. Take extra precautions to protect them from heat-related illnesses.
- Make sure workers drink enough fluids during warm or hot weather.
- Heat-related illness can occur indoors. The risk is not limited to outdoor workers.
- Some types of work clothing prevent the release of heat from the body. Environmental heat measurements underestimate the risk of heat-related illness in these situations.
- Workers are at risk of heat-related illness when they are reassigned to warmer job tasks.

Overview – Specific Steps for Employers to reduce Heat Hazards

- Let workers drink as much water as they want whenever they want while working in hot conditions;

- Schedule short shifts and frequent breaks to limit how long workers exert themselves in the heat; and
- Develop a heat stress program that includes specific procedures to be followed for heat-related emergency situations.
- Conduct heat stress assessments to determine workers' risk of hazardous exposure.
- Implement engineering and administrative controls.

FINAL WORD

Every minute's delay in cooling a person with heatstroke increases the likelihood of permanent injury or death. Apply first aid and seek medical assistance immediately if you, or someone you are with, shows any sign of heat exhaustion or heatstroke.

Cold Weather Machines

WHAT'S AT STAKE?

Before you get caught in the winter cold, winterize your equipment to protect it from damage. Any equipment being stored for the season should be prepared and protected, or it may not start up again in the spring.

WHAT'S THE DANGER?

When Temperatures Drop

Freezing air can fundamentally alter the efficiency of lubricants and how machinery operates. However, winter does not need to unnecessarily slow or delay operations – or compromise the safety

of your operators. Take necessary precautions to prevent the negative effects of cold temperature protect your machines and equipment. Check the owner's manual for each of your machines and contact your local dealer before making any modifications to a machine's regular maintenance practices.

Maintain in Optimal Condition

Engine

- Take extra care when fuelling machines and equipment to prevent water and other particles from getting into the tank.
- Check the fuel, air, and hydraulic filters regularly so equipment can start easily.

Battery

- Be cautious when using jumper cables, especially during the winter. Incorrect use (reverse polarization hookup) could potentially result in extensive damage to an electrical system.
- Avoid charging a frozen battery to prevent battery explosion.

Starter

- Handling, using, and storing highly volatile ether starting aids in pressurized cans is a major safety concern. If handled improperly, the engine may seize, or crank/bend the valve stems.
- Safety measures are crucial, especially when two or more workers are involved when starting a machine. Before proceeding to jump-start any machinery, assign each person a specific role and discuss the entire process in detail beforehand.

Machine Warm-Up

- Freezing temperatures can make hoses and wires brittle. Take time to warm up machines before operating.

- Warm hydraulics quickly by holding the control valve to open the relief valve.

Operation

- Before winter arrives, inspect atmospheric systems (defrosting devices and operator compartment heaters) to ensure they are in good working condition. This practice helps prevent unexpected problems that can cause operational delays.
- Cab or machine windows can easily fog up and reduce visibility. Clean windows thoroughly so the driver can spot nearby obstacles, machines, and other workers.
- Frozen ground makes work difficult and sometimes impossible. Wheels can easily slip on ice and snow, causing collisions with other equipment and structures – and endangering anyone in the vicinity.
- Maintain control of each machine by reducing ground speed and lessening the shock of impact on brittle ground contact surfaces.

Winter puts more strain on every machine. Batteries work harder to start and provide power. Preseason maintenance is imperative for optimal performance. Make sure to regularly inspect your machinery to detect damage, leaks, and other problems. Fix them immediately and avoid downtime. Also, check the auxiliary hydraulic connections, hoses, belts, attachment connections, and fluid levels for any signs of damage.

HOW TO PROTECT YOURSELF

Daily Inspections

Cold weather can take a toll on even the toughest equipment. It is essential to perform daily inspections of all equipment on your site before use, so you can catch any problems quickly before they turn into something more serious. Check all parts of your equipment including:

- Battery

- Tire pressure and tread
- Fluid levels and flow
- Fuel levels
- Build-up on filters
- Lubrication of engine parts, joints and hinges
- Headlights
- Windshield wipers
- Heaters and defrosters
- Brakes
- Body surface and glass
- Undercarriage

1. Battery Health

In cold weather, batteries do not perform as efficiently as they normally do. Batteries will have less pulling voltage in winter, meaning more pressure on the engine during start-up. In weather below freezing, the pressure on the engine can increase by 50 percent. When batteries are weakened by cold conditions, machines may have issues starting or maintaining power. Before each use, be sure that the battery is fully charged. If you need to charge or jump a battery, never do so when the battery is frozen. Allow it to warm up to at least 40 degrees Fahrenheit before charging it. Charging a battery when it is frozen may cause the battery to explode.

Batteries will also charge more slowly in the winter and may die more quickly. Before use, check that there are no signs of corrosion on the cables or connectors of the battery. You should also look out for signs that your machine's battery may be dying, such as:

- Slow engine crank
- Corrosion on battery posts or cables
- Issues with other electrical components in the machine
- Battery not holding a charge

2. Tire Inflation

Check your tire pressure before using a machine to ensure that tires stay fully inflated. Cold weather also makes it more

difficult for tires to maintain pressure. Under-inflated tires lead to worse fuel efficiency which means higher operating costs. If tires have low pressure, they will also wear more easily and may be more likely to burst due to brittleness in the winter. When inflating tires, do so in a heated area. Using dry nitrogen in tires can also help eliminate ice crystals. When ice crystals occur, they cause the valve stem to stay open which further increases the deflation rate of the tires.

3. Tire Tread

Equipment and ice It is extremely important for safe operation of machines in winter that tires have good tread. Even large equipment can slide on ice or snow, which can lead to accidents or injury. Make sure tire tread is appropriate and replace tires if they become too worn down for safe operation in slippery conditions.

4. Fluids

Even when you are using the proper winter fluids in your equipment, extremely cold weather can cause fluids to thicken which increases the pressure on seals and hoses. If fluids freeze or become too thick, they can cause hoses, which are already more brittle in cold weather, to burst. When inspecting fluids, check fluid levels and viscosity by checking the dipstick. If the fluid drips, it is fluid enough. You should also look for signs of leaks that could indicate cracks in seals or hoses.

As part of the winterizing process, you should change the oil in your machine to a synthetic base multi-grade oil so that it will flow better in colder temperatures, posing less risk of solidifying and clogging filters.

5. Filter Replacement

Be sure to check all filters as dirty or clogged filters can impact a machine's ability to start or cause it to lose power in the middle of a job. If a machine loses power during operation in the winter, it may be stuck in ice and snow that would lead to further damage to the machine.

6. Fuel Filters And Fuel Gelling

Diesel particulate filters are extremely important to check carefully in the winter as colder temperatures will affect the emissions system of your machines. If there is any free water in your fuel tank, it can freeze and create ice crystals. These crystals can cause wear on your fuel systems or clog filters and pipes. To reduce the potential for free water to collect in your fuel tank, top off the fuel tank daily to prevent condensation from building in the tank.

▪ Fuel Gelling

Another major cause of clogged filters in the winter is fuel gelling. Gelling occurs when compounds in the fuel reach their freezing point then turn into thick, waxy solids. These soft solids can coat and block filters. Diesel fuel is a mixture of around 250 chemicals, most of which are hydrocarbons. Each hydrocarbon has a different freezing point, but a good winter diesel will contain a mixture of hydrocarbons with lower freezing points. Be sure your winter diesel is number 1 diesel (1-D) or a mixture of 1-D and 2-D.

▪ Cold Filter Plugging Point (CFPP)

You should also be aware of the Cold Filter Plugging Point, or CFPP, of your fuel. The CFPP is the temperature at which wax will form crystals that drop out of the diesel and clog fuel filters. If operating your machines in temperatures lower than the CFPP, be sure to allow proper warm-up time and avoid storing your equipment overnight in cold conditions.

▪ Biodiesel

If you are using biodiesel in your machines, you face an additional risk of glycerin solids forming in your fuel tanks. Glycerin is a byproduct created in biodiesel production that is removed from the fuel before use. However, even a small amount of glycerin left in biodiesel can cause major issues for your equipment operation in winter. When glycerin freezes, it clogs fuel filters just as gelled fuel does, however, glycerin will not

become liquid again once the temperature rises above its freezing point. Instead, the glycerin will remain solid in your fuel tank, preventing fuel from flowing even after it warms up.

▪ Build-Up

When gelling or glycerin build-up occurs on a fuel filter, it can be difficult to notice if you are not looking for it. Soft solids will form a waxy coating over the filter and can sometimes collect in the filter can, but the filter itself may appear clean. Be sure to look out for waxy build-up on your diesel fuel filters and change filters before clogged fuel flow causes your machines to break down or be unable to start in the morning.

7. Fuel Levels

It is best practice to top off your fuel every night so moisture will not collect in the tank. This will prevent the formation of ice crystals inside of your machine. It is also best to empty the water separator daily so it does not have a chance to freeze. Your fuel rating should be 40 Cetane or higher in the winter and 50 Cetane or higher when temperatures go below zero.

8. Lubrication

Any moving parts of your vehicle should remain properly lubricated as cold weather can cause parts to freeze or stick. This can halt processes and cause damage to the machine if parts jam during operation. Check all joints and hinges daily for proper lubrication.

9. Lights and Wipers

Checking that all lights and wipers on equipment are functional becomes even more important in the winter. Winter months tend to bring lower light levels, more condensation and more precipitation. In these poor-visibility conditions, it is essential that lights are kept clean and bad headlights are replaced immediately.

10. Heaters and Defrosters

For the comfort and safety of your employees, the defrosters and heaters in all machine cabs must be functional. Defrosters ensure that visibility can be maintained even in poor winter weather. Maintaining a comfortable temperature inside machines allows operators to move properly as extreme cold temperatures can cause muscles to stiffen which impairs proper operating.

11. Check Brakes

In winter weather, equipment is more likely to slip or skid so it is essential that brakes are working in top condition.

12. Surface Damage or Cracks in Glass

If there are any cracks in the glass of a windshield or window, these can become a serious issue in the winter when moisture seeps into cracks and freezes. The expansion of the ice will cause even small cracks to spread and could lead to the glass shattering. Small paint chips on equipment surfaces can lead to the machine rusting if it is left out in the snow or ice. Be sure to identify and repair any surface damage to machines before it becomes a bigger issue.

ADDITIONAL COLD WEATHER

REMINDERS/RECOMMENDATIONS

- Always read and understand the Operation and Maintenance manual
- To better prepare your machines for cold weather try the following:
 - Use block heaters
 - Use enclosed storage facilities when machines are not being used
 - Be sure to install the correct lubricants
 - Provide the correct cooling system protection for the conditions you are working
 - Inspect all rubber parts weekly
 - Keep all batteries fully charged
 - Always fill the fuel tank at the end of the shift

- Check the air filters on a regular basis when snow is present
- Before your shift, run the engine until it reaches operating temperatures
- If your machine is shut down for more than 16 hours, the engine will cool to the external temperature
- Always maintain your machine per the Operation and Maintenance Manual during cold weather

FINAL WORD

Cold weather affects motorized equipment – not only the engine, but the hydraulic systems as well. Equipment that does not operate smoothly or predictably is a safety hazard to operators and other workers near it.

Confined Space Entry

WHAT'S AT STAKE?

Confined spaces can be below or above ground. Confined spaces can be found in almost any workplace. A confined space, despite its name, is not necessarily small. Examples of confined spaces include silos, vats, hoppers, utility vaults, tanks, water supply towers, sewers, pipes, access shafts, truck or rail tank cars, aircraft wings, boilers, manholes, pump stations, digesters, manure pits and storage bins. Ditches and trenches may also be a confined space when access or egress is limited. Barges, shipping containers and fish holds are also considered as possible confined spaces.

Context is important to understand the danger of entering a confined space. One must be, careful to follow the very special

precautions and procedures before entering. Even if you just are able to put your head through the opening of a confined space, you are entering. Confined spaces are not designed for someone to work in regularly, but workers may need to enter the confined space for tasks such as inspection, cleaning, maintenance, and repair.

Many confined spaces have small openings, which can make entry and exit difficult and can complicate rescue procedures.

WHAT'S THE DANGER?

Hazards in Confined Spaces can include:

- **Poor air quality:** – There may be an insufficient amount of oxygen for the worker to breathe. The atmosphere might contain a poisonous substance that could make the worker ill or even cause the worker to lose consciousness. Natural ventilation alone will often not be sufficient to maintain breathable quality air.
- **Hazards from asphyxiants** – Simple asphyxiants are gases which can become so concentrated that they displace oxygen in the air (normally about 21 percent). Low oxygen levels (19.5 percent or less) can cause symptoms such as rapid breathing, rapid heart rate, clumsiness, emotional upset, and fatigue. As less oxygen becomes available, nausea and vomiting, collapse, convulsions, coma and death can occur. Unconsciousness or death could result within minutes following exposure to a simple asphyxiant. Asphyxiants include argon, nitrogen, or carbon monoxide.
- **Chemical exposures** – Skin contact or ingestion as well as inhalation of 'bad' air.
- **Fire hazard:** – Explosive/flammable atmosphere due to flammable liquids and gases and combustible dusts which if ignited would lead to fire or explosion.
- **Process-related hazards** – Residual chemicals, release of contents of a supply line.
- **Physical hazards** – noise, heat/cold, radiation, vibration, electrical, and inadequate lighting.

- **Safety hazards** – Moving parts of equipment, structural hazards, engulfment, entanglement, slips, falls.
- **Explosion**
- You can't smell or see some explosive gases so you might not know they are in the air. A spark or other ignition source might result in an explosion. Many dusts and chemicals can also explode.
- **Trapped, Crushed, Or Buried**
- Loose or unstable materials might fall on you and trap or bury you. A liquid, a hazardous gas, or steam might flow into the space. You might get caught in a piece of equipment that starts moving.

HOW TO PROTECT YOURSELF

The first rule is that one should never enter a confined space without proper training. You are in the "control position" if you are equipped with proper training and personal protective equipment. In addition, written procedures and an entry permit system are essential.

Guidelines

- **Take atmospheric precautions.** The atmosphere should be tested before you enter – by trained people using the right equipment. The confined space should be ventilated until it tests safe, and possibly afterwards. If this is not possible, the right respiratory protection should be worn.
- **Lock out energy sources.** Lines carrying gases, liquids or solids should be disconnected or blocked off before you enter. Valves and electrical circuits should be locked out and tagged.
- **Remove possible sources of ignition.** Use non-sparking tools and lighting devices in a potentially flammable atmosphere.
- **Be fully prepared before entry.** Make sure you are wearing the required personal protective equipment (PPE) including a hardhat, safety-toed footwear, gloves and your breathing apparatus.

- **Wear a lifeline.** The lifeline should be connected from your body harness to a winch outside the confined entrance so you can be pulled out in case of emergency.
- Have **trained and equipped personnel** standing by outside the confined space, for communication and rescue if necessary

Overview of Prevention/Controls

The traditional hazard control methods found in regular worksites can be effective in a confined space. **These include engineering controls, administrative controls and personal protective equipment.** Engineering controls are designed to remove the hazard while administrative controls and personal protective equipment try to minimize the contact with the hazard.

However, often because of the nature of the confined space and depending on the hazard, special precautions not normally required in a regular worksite may also need to be taken. The engineering control commonly used in confined spaces is mechanical ventilation. The **Entry Permit** system is an example of an administrative control used in confined spaces. Personal protective equipment (respirators, gloves, ear plugs) is commonly used in confined spaces as well. However, wearing of PPE sometimes may increase heat and loss of mobility. Those situations should be carefully evaluated. When using PPE, always use as part of a PPE program and be sure to evaluate all possible hazards and risks associated with PPE use.

FINAL WORD

Many workers are injured and killed each year while working in confined spaces. An estimated 60% of the fatalities have been among the would-be rescuers. A confined space can be more hazardous than regular workspaces for many reasons. To effectively control the risks associated with working in a confined space, a confined space hazard assessment and control program should be implemented for your workplace. Before putting together this program, make sure to review the specific regulations that apply to your workplace.

Emergency Preparedness Safety Talk

WHAT'S AT STAKE?

Emergencies can create a variety of hazards for workers in the impacted area. Preparing before an emergency incident plays a vital role in ensuring that employers and workers have the necessary equipment, know where to go, and know how to keep themselves safe when an emergency occurs.

The more you are prepared for them, the better you will be able to act, minimizing panic and confusion when an emergency occurs.

WHAT'S THE DANGER?

Emergencies occur every day in many facilities, including laboratories, offices, and residential buildings. It might be a fire, flood, earthquake, shooting, tornado, or hazardous chemical spill. If you don't know what to do during an emergency the odds increase that you or others around you will be injured or killed.

EMERGENCIES

- Severe weather, such as heavy wind, flooding, tornados, or hurricanes
- Utility outages
- Fires
- Explosions
- Widespread infection
- Hazardous materials
- Earthquakes
- Workplace violence

- Terrorism

HOW TO PROTECT YOURSELF

An emergency plan needs to be well-thought out. It needs to be easily accessible. Though logic says it has to be thorough and well vetted, it is more important for workers to know about it, does it really describe the methods to respond to the emergency event!!! A better fit is to have an appendix or supplement to enable workers to know the emergency and what to do in emergency. Small “flipcharts” or spiral-bound, hand-size, notepad-type inserts that outline each potential risk or emergency, and then show who to call, with numbers and what occupants should do for their own safety and safety of others.

Confusion and uncertainty reign in an emergency. This happens from not knowing **how** to react or not **recognizing** the potential for danger.

Knowing and **practicing** what to do before an emergency occurs is a key step to protecting yourself and others around you. In addition to participating in emergency drills held by your employer, take time to see how the following questions are answered.

WHO

- Who are the qualified first aid personnel for your facility?
- Who on your crew knows CPR?
- Who in your area is trained to clean up a chemical spill?

WHAT

- What factors determine when you evacuate and when you shelter-in-place? Fire and explosions are examples of when to evacuate. You may be told to shelter-in-place during an earthquake, severe weather, or radiological, biological, or chemical release.
- What are the emergency exit routes from your work area? There must be at least two – and more than two are required if the number of employees, size of the building, or how the workplace is arranged will not allow for safe evacuation.

- What phone numbers do you call for various emergency agencies?
- What is the physical address of your work location?
- What are your duties in an emergency?
- What should an emergency kit contain? Do you have one in your car or at work?

WHERE

- Where should you assemble outdoors if you must evacuate?
- Where should you shelter-in-place if necessary?
- Where is the first aid equipment located?
- Where are the nearest telephones in your work area?
- Where is the fire extinguisher located? Do you know how to use it? If not, where and how will you get training?
- Where are the safety showers and eyewash stations in this work area? Do you know how to operate them?
- Where are the SDSs (Safety Data Sheets) for the chemicals used in your work area?

HOW

- How do you activate the alarm for a fire? For any other kind of emergency?
- How do you contact the fire department or a facility fire brigade?
- How would you give directions to an ambulance or other emergency service to reach your area?

OVERVIEW

The **WHO, WHAT, WHERE, AND HOW** answer will enable people to get a firm grasp of knowing and what to do in the event of an emergency in the workplace.

It is seemingly simplistic but it answers all the questions that likely will arise in an emergency situation

FINAL WORD

Remember, if you wait for an emergency to learn how to protect yourself, it's likely already too late. Talk to your supervisor or floor warden to clear up any questions you have with respect to an evacuation due to an emergency of any kind.

Fire Hydrants

WHAT'S AT STAKE?

A fire hydrant is simply a point where people are able to tap into a water supply. The most common use for them is to assist firefighters in putting out fires. By connecting a hose to a hydrant, they gain access to all the water they need to douse a burning building!

How Hydrants Work

Fire hydrants are connected to a large water supply through underground pipes. When firefighters arrive on the scene, they connect a hose to the side of the hydrant. Once the hose is connected, a special wrench with a pentagon-shaped socket is used to turn the nut on the top of the hydrant. This unique tool is not widely available, so only authorized people, like firefighters, can use hydrants.

WHAT'S THE DANGER?

1. Missing, Damaged Or Covered Fire Hydrant Marker Plates

Hydrant marker plates are rectangular yellow signs, with a large black H and a pair of numbers, usually attached to a wall, lamp

post or a short concrete post. The two numbers on the plate show the size of the water main and the approximate distance of the hydrant from the plate.

As well as marker plates, all hydrants are also shown on the digital maps available in fire engines, so that the nearest one can be found while firefighters are on their way to an incident. This also means that even if marker plates are missing or broken, the fire service will still be able to find them in most cases, and once reported they will be repaired in due course.

2. Dangerous, Missing or Cracked Hydrant Covers And Frames

When a fire hydrant cover is missing or cracked, it can expose the hydrant to the elements, which can cause it to freeze and get blocked with mud or silt. This can stop it working when firefighters need it.

3. Leaks From Fire Hydrants

Most leaks are below ground and not visible, but even leaks on the surface are often not reported due to people assuming someone else will have already reported a problem. Leaks affect water flow and pressure from a fire hydrant, making it less effective if firefighters need to use it. Please report any leaks as soon as they are discovered.

4. Leaks From Water Supply Pipes Or Mains

Leaks from water supply pipes or mains are the responsibility of the water company but can affect the availability of water from a fire hydrant. The sooner leaks are reported to the water company, the sooner they can fix the problem.

5. Illegal Use Of Fire Hydrants

Many problems with fire hydrants are caused by illegal use. It is illegal to use a fire hydrant to obtain water for purposes other than firefighting “unless authorized by the water authority or another person to whom the hydrant belongs” (source: Fire and Rescue Services Act 2004, section 42, subsection 6).

The public can tell the local water companies or the fire service when they suspect illegal use. Key pieces of information such as the registration number and any company names on a vehicle, along with the date, time and location of the activity will be very helpful, but please avoid confrontation with suspected offenders.

6. Parking On or Preventing Access To A Fire Hydrant

It is an offence to be parked over or to prevent access to a fire hydrant when it is required for firefighting (source: Fire and Rescue Services Act 2004, section 42, subsection 7). Parking for a short time on a hydrant can occur occasionally, but if this happens repeatedly with the same vehicle it should be reported to the water services team at Kent Fire and Rescue Service.

Please be considerate when parking near a fire hydrant marker post and ask friends, relatives and neighbours to be aware, as this could save time in an emergency.

7. Alternative Emergency Water Supplies

As well as fire hydrants, we can use open water sources at incidents, including ponds and swimming pools. Please report these sources – if they are on private land owned or occupied by an individual or company – to the water services team, giving key information including the location and capacity if known.

In the event of a fire, every available water source will be used. After the incident, any water that has been used will be replenished free of charge, at a time agreed by the local water company and the fire service.

HOW TO PROTECT YOURSELF

Fire Proactive Prevention Measures

1. Reduce Clutter

Any fire needs fuel, and a cluttered desk or office is full of the type of fuel that helps a raging fire spread. Make sure to reduce the amount of clutter in your office. One simple way to do this is

to emphasize electronic communications and the reduction of printed pages.

2. Know Capacities

How many people are supposed to be in your office or on a particular floor at a given time? These capacities are assigned for several reasons, one being so that a building can be safely and effectively evacuated in the event of a fire.

3. Mind Your Heat

Make sure to keep heat-creating equipment away from walls and any flammable materials. Also, discourage or restrict the use of space heaters in your office.

4. Regularly Test

Regularly test your fire alarms and smoke detectors. In the case of an emergency, it will be vital that these tools are working at their best if you are to keep everyone in your office safe.

5. Label Exits

Most people in your office most likely use an elevator if it has multiple floors, but it is essential that they know where to find the stairs in case of an emergency. Make sure to clearly label your exits to avoid confusion about the quickest path out of your office in the case of a fire.

6. Drill Your Team

When was the last time your office conducted a fire drill? If you cannot remember, it has probably been too long. These are the times when you and your office mates can practice getting to the stairs and quickly getting out of the building in case of fire. It can also be a chance for your office to recognize – and fix – any deficiencies in the evacuation process.

7. Easy on the Outlets

No one in your office should overload an electrical outlet. Make sure you are using surge protectors and generally limiting how

many plugs you are engaging in one outlet at a time.

8. Check Wiring and Cords

Frayed wiring and electrical cords can be a significant source of fire. Examine your wires and cords regularly to make sure there are no issues. If you notice fraying or similar damage, replace the cords as quickly as possible.

9. Assign Smoking Areas

You never want anyone smoking near your office. Provide designated smoking areas, and make sure those areas are as far away from the building as possible. Make sure these smoking areas have proper receptacles for disposing of cigarette butts.

Overview

Fire safety in the workplace also depends on your having the right fire safety procedures in place and ready to go in case of an emergency. These procedures don't necessarily need to be complex. First, sound an alarm that everyone can hear. Second, call 9-1-1. Follow the escape route that has been tested through regular drills, and then stay out of the building until it is deemed safe by the fire department. The overall safety of your workplace depends on workplace fire safety plans and procedures.

FINAL WORD

Protecting areas without water supplies or hydrants is multifaceted, especially in a large fire district. There's a need to plan for firefighting resources, determine where to get water for fighting fires, and work to make buildings as fire-safe as possible.

Hearing Protection

This section addresses noise-induced hearing loss and protection in the workplace.

Overview

Any workplace that’s operations produce a harmful noise level must institute several safety programs, including (but not limited too) a hearing conservation program, monitoring, audiometric testing program, and training program. To comply with OSHA and federal regulations, employers must establish certain engineering and managerial controls (prior to the use of PPE).

Under the hearing conservation program, monitoring noise levels (decimals) determines an employee’s exposure then hearing evaluation is conducted through an audiometric testing program.

Noise Exposure

Following OSHA’s table G-16 (see below); an employer must provide accommodations to protect employee’s hearing when noise exposure exceeds the given levels.

Duration per day, in hours	Sound level decibels (dB) A slow response
8	90
6	92
4	95
3	97
2	100
1 1/2	102
1	105
1/2	110
1/4 or less	115

If levels exceed those listed, an employer, by law must implement reasonable hearing conservation controls (i.e.; noise reduction tools, noise canceling devices, barriers, etc). An employer failing to reduce to acceptable sound levels must then implement a hearing conservation program.

Hearing Conservation Program

Minimum Requirements for a Hearing Conservation Program:

- Noise monitoring requirements
 - Audiometric testing
 - Engineering and administrative noise exposure control
 - Personal hearing protection
 - Recordkeeping
 - Training
-

Common Safety Mistakes

WHAT'S AT STAKE?

Common mistakes can lead to dangerous situations in the workplace that could have been easily avoided.

Accidents can happen anywhere and anytime in spite of the best of intentions and the best safety programs. The test comes down to take certain strategic measures that prevent workplace injuries, accidents and illnesses.

WHAT'S THE DANGER?

1. No Process or Plan

Most workplace injuries occur when work being done is not part of a normal process. It is important to have a work plan for non-

process work. No matter how it is done, planning the work and asking ‘What if...?’ questions will help identify hazards and implement controls to prevent injuries. Complete daily hazard assessments and review with your crew before commencing work.

2. Failure to Communicate

One of the easiest things to prevent unsafe conditions is to discuss what hazards or unsafe acts have been noticed. Communicating the hazards and failures in processes is an essential element of protecting ourselves and our co-workers from the hazards that potentially exist in our workplace.

3. Visual Connection Problems

The noise in many workplaces can be quite deafening at times, which can make it difficult to communicate. When it comes to safety, communication is essential. This is why it is so important to have visual communication options in any loud workplace.

Visual communication can come in many forms including signs, labels, floor markings, lights, and more. Taking the time to find ways to effectively communicate without relying on voices will take some effort, but it can dramatically increase the overall safety of a facility.

4. Overcomplicating Safety Instructions

When making a policy to improve the safety of one particular area in a facility, it is important not to overcomplicate things. Keep in mind that the safety efforts made will need to be followed by everyone in the facility, and making them too complex will only result in people bending or breaking the rules.

To the extent possible, all safety instructions given out in a facility should be short and to the point. In addition, these instructions should be in line with common sense so people won't have difficulty understanding what they are doing and why.

5. Lack of Housekeeping

One of the simplest yet most effective things that you can do to

improve facility safety is keep it clean and organized. Sadly, this is also one of the most common workplace safety mistakes people make. Rather than taking the time to clean and organize an area, many companies see this type of activity as a waste of time.

A clean and organized workplace, however, helps keep tools and equipment in good condition (and keeps them from being lost). A messy work area also presents an increased risk of tripping and other accidents.

6. Fail to Use Proper Personal Protective Equipment

The widespread use of personal protective equipment is one of the most important ways companies have improved safety over the years. Unfortunately, many employees either fail to use the PPE at all or they don't use it properly. This leaves them exposed to the dangers they are supposed to be protected from.

Not only that, but when one person is not wearing the right personal protective equipment, it increases the risk for everyone around them. This type of compounding hazard can lead to very serious safety issues that could have otherwise been avoided.

7. The Wrong Tool for the Job Used

Just about every task that needs to be done in a facility will require some type of tool. Using the right tool for the job is not only the most efficient way to get it done, but it is also the safest. When employees try to take a shortcut by just using whatever tool they have with them at the time, they are dramatically increasing the risk of an accident occurring.

Investing the time and money into making sure the right tools are available for a given job will help keep people safe and will also ensure a job is done quickly and correctly.

8. Maintenance & Inspection of Machinery Neglect

For many companies, keeping machines up and operating at all times is the most important thing. When machines are running, they are making money. This is why many facilities postpone or ignore many types of machine inspections and maintenance.

This can, however, cause machines to breakdown unexpectedly. Machine breakdowns are a big problem for productivity, but they can also cause many safety issues. Any machine that has issues will have unpredictable performance, which can put all the people who work with or around the machine at risk. Performing regularly scheduled maintenance and inspections is absolutely critical for workplace safety.

9. Fail to Track “Near Misses”

Just about everyone who has worked in any type of work environment has had a “near miss” at some point in their career. These are those instances when if something had happened just a little differently, it would have resulted in a serious injury or even fatality.

While it is certainly a relief when nobody is hurt, it does not mean that a safety incident did not occur! Keeping track of all near miss events and learning from them is an important part of any workplace safety strategy. Identifying the cause of a near miss so it can be fixed will help prevent the same thing from happening again in the future, but possibly with much worse results.

10. Education Treated as Optional

One of the biggest workplace safety mistakes a facility can make is treating safety education as optional. While safety education doesn't provide any immediate return on investment, the long-term benefits are really incalculable. Making this type of training a priority may be the single best thing a company can do to avoid accidents and other safety mistakes in the future.

11. Improper Handling of Hazardous Materials

Facilities often have hazardous materials used for different tasks. These materials need to be stored properly at all times to avoid the risk of a spill or other accident. In addition to keeping them in safe containers, those containers need to be properly labeled so everyone knows what they contain.

A properly labeled hazardous material container will make an accident much less likely. If there is an accident, however, everyone will know what to do based on the information provided on those labels.

HOW TO PROTECT YOURSELF

When thinking about safety mistakes, the things that come to mind are usually dangerous accidents or exposure to hazards. The following five areas illustrate problems and prevention.

Safety Mistake #1: Inadequate or rushed training

It makes sense that employers would want to onboard new employees as efficiently as possible. From a financial standpoint, hiring and training is a costly process. The more efficient the training, the sooner the employee can become a productive contributor to the company. While expedited training might seem appealing, taking the time to train and onboard properly can have numerous health and safety benefits.

In matters of workplace health and safety, detailed and thorough training can set a strong standard and example from an employees' very first day on the job. Not only does it help arm employees with the knowhow to prevent workplace safety mistakes, but it also communicates that safety is a priority.

Although employees and employers commonly agree that training is important, most people don't enjoy sitting through lengthy training sessions, whether in a classroom or in front of a computer. All of this can harm the quantity and quality of information that employees absorb. A strong health and safety system maximizes employee time and attention to deliver training that is timely, hands-on, and relevant. Lower load – To lower the load downward, the signal person will extend their arm horizontally, pointing their index finger towards the ground, once in this position they will make a circle motion with their finger.

Safety Mistake #2: Near-Misses/Close Calls

A near-miss incident can feel like a relief, and it is easy to move on and forget what happened once the threat has passed. However, neglecting to follow up on a near-miss is a major risk factor, because it increases the chances that the issue will come up again. How do you ensure that a near-miss doesn't snowball into a serious incident?

Near-miss reporting requires clear and seamless communication throughout the organization. When employees and management are not sure whether or how to report near-misses, it affects not just that single case, but the overall quality of incident reporting data. In a near-miss scenario, it might be tempting to sigh with relief and move on, thankful that the worst outcome was avoided. However, follow-through should never stop here.

Over time, proper near-miss reporting results in a trove of accurate and potentially life-saving data. To achieve this level of reporting, it's important to communicate a clear, straightforward policy on the reporting process. One of the first and simplest steps is to define exactly what is meant by a near-miss. For example, The National Safety Council defines a near miss as "an unplanned event that did not result in injury, illness, or damage – but had the potential to do so". The definition can be tailored to make it relevant to the organization and industry, and it should be made known to all personnel involved in safety reporting.

Most importantly, regular discussion of near-misses normalizes reporting and creates a clear line of communication between workers and management. For example, asking about near-misses in daily meetings or through reporting dashboards can turn attention to recurring issues that need to be addressed. The organization should establish a clear chain of command and protocol for addressing near-misses, including reporting, analysis, prioritization, and finding solutions.

Safety Mistake #3: Missing Regular Maintenance and Inspection

Equipment maintenance is extremely important, but doesn't it always seem to come up at the most inconvenient time? If maintenance and upkeep are done on the spur of the moment, it's easy to think of all of the reasons why the equipment is needed and cannot be turned off, even briefly. Putting it off longer or adding "equipment maintenance" to a mental to-do list might make us feel better in the moment. Unfortunately, the delay only increases the chances of a completely preventable cause of equipment failure and poses a major safety hazard to employees.

The best answer to this vicious cycle of scheduling and rescheduling is regularly scheduled maintenance checks. This can be simplified by building this into your workplace health and safety software, like Donesafe. This can help address one of the biggest reasons for putting off maintenance, which is a loss of productivity. Scheduling maintenance regularly can help prepare and account for a temporary dip in productivity. The alternative, doing maintenance only when the equipment malfunctions, is a surefire way to lose productivity. Planning maintenance ahead of time—and abiding by the plan—helps accommodate any downtime resulting from the inspection. Regular maintenance is also crucial for preventing safety incidents resulting from faulty equipment.

Safety Mistake #4: Failure to use proper tools and protective equipment

Improvisation and creative thinking are valuable skills in any workplace. In the interest of time and efficiency, a worker might choose to improvise or use the available tools to complete a task, especially if the task is urgent. Unfortunately, taking shortcuts to get the job done can result in entirely preventable workplace safety mistakes. Substituting an imperfect tool for the correct tool might get the job done, but it's also likely to pose a higher risk of injury. Likewise, completing a task "on the fly" might mean that proper safety equipment, such as hard hats or reflective

clothing, is inaccessible.

Avoiding this issue is a matter of preparation as well as communication. Employees should have the right tools to do their job, and they should also be instructed on the proper handling of these tools. The issue also needs to be addressed through communication that centers teamwork. Why? It's as simple as the fact that a fall from an improperly placed ladder will injure both the person on the ladder as well as those beneath it. Misusing equipment and failing to protect oneself pose risks not just to the individual, but anyone working alongside them. Team-oriented communication promotes a shared responsibility towards oneself and others. Workers who engage in risky behavior may change their behavior if they realize that their actions endanger others as well as themselves.

Safety Mistake #5: Fail to prioritize a health and safety system

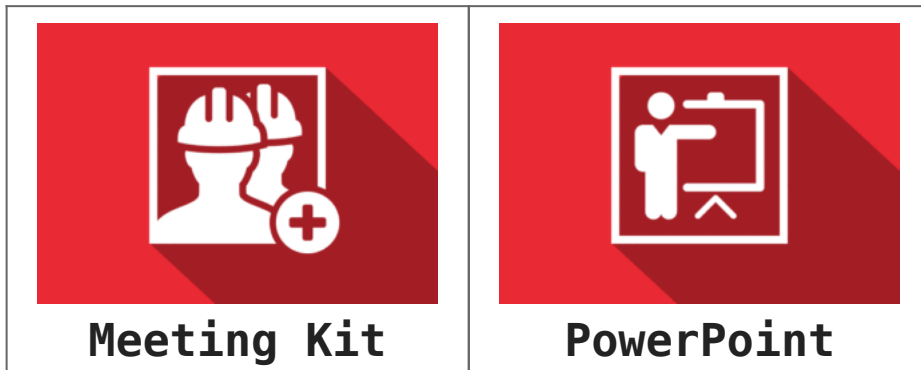
A robust health and safety system is made up of so many moving parts: incident reporting, standards, hazard management, regulatory compliance, training, just to name a few things. Many of these areas are subject to continuous updates and changes and require ongoing monitoring and maintenance. Luckily, these tasks can be managed in one place by investing in comprehensive health and safety management software. By choosing to bring the entire health and safety system under a single umbrella also sends a clear message that "health and safety" is more than just a slogan, but rather an organizational priority.

FINAL WORD

Knowing the rules and following them is one piece of the puzzle: think recordkeeping, incident tracking, and regulatory compliance. Just as important, though, is avoiding major safety mistakes. Although this sounds obvious, some of the biggest workplace safety mistakes can be difficult to recognize and prevent.

General Safety Rules

Download Instructor-Led Material



WHAT'S AT STAKE?

General Safety is a multi-disciplinary approach to developing and ensuring compliance with regulatory agencies, safe working practices, and maintaining the health and well-being of those employed in a particular occupation or workplace. Strategies to accomplish these goals maintain a strong focus on injury prevention through hazard identification, prevention and controls; education & training; audits & inspections; engineering modifications, and enforcement.

WHAT'S THE DANGER?

Machine Shop facilities must be kept in properly working status and maintained in safe working and handling environment by every personnel. Self-discipline and good working manner is the key to success for laboratory and the workshop. Any accident or mishap may damage equipment, cause injury or death. There are general rules and guidelines for the people working with mechanical devices to follow. There are also operational manuals and specific rules for every item of mechanical equipment to be followed by users. When you are operating a machine or a mechanical apparatus,

you should always adopt a defensive attitude and be aware of the source of danger.

HOW TO PROTECT YOURSELF

There are general safety rules for people who work with mechanical devices and in potentially dangerous situations in their jobsite.

General Safety Rules

1. All accidents, injuries and near misses must be reported to your supervisor, immediately.
2. Immediately correct, or report any unsafe acts or conditions to your Supervisor, and warn any employees who may become involved.
3. If you have any doubt regarding the safety of a job procedure, consult with your immediate supervisor before proceeding with the task.
4. If an item of protective equipment is required by the job-site, or for the job you are doing, consider the use of that equipment as a condition of employment.

The following PPE must be worn:

- **Steel-Toed Boots** – Must be worn at all times on the job-site. Safety Boots must meet CSA standards, have penetration protection and have above the ankle support.
- **Safety Vests** – Conforming to WorkSafeBC Standards must be worn at all times on the job-site. “Spaghetti Strap Vests” are not acceptable.
- **Hard-Hats** – Must be worn at all times on all job sites/plants/yards.
- **Hearing Protection** – Must be worn when exposed to noise levels over 85 dBs. (e.g. Shouting instructions at 4’)
- **Eye Protection** – Must be worn when required by the job being performed: Grinding, welding, drilling, saw-cutting, jack-hammering, pressure washing...etc.
- **Gloves** – Must be worn when handling material likely to cut, puncture, burn or irritate hands.

- **Life Jackets** – Must be worn when working on barges without walls, within 10' of an open dock, or in conditions that present the risk of drowning.
 - **Respirators** – Must be worn when exposed to workplace atmospheric conditions that could result in injury: Saw-cutting/grinding concrete, painting, or handling chemicals.
 - **Fall Protection** – Must be worn when working at heights of 10' or greater.
 - **Clothing** – Every employee must wear clothing appropriate for work, long pants and over-the-shoulder shirts must be worn at all times. Loose apparel and jewelry must be secured or removed, and long hair must be tied back.
5. Inspect tools and equipment daily, ensure all guards and safety devices are in place and functional. Misuse or willful damage of company tools and equipment is strictly prohibited.
 6. Maintain good housekeeping in the workplace. Do not allow materials to gather on floors, platforms, ramps, stairs or walkways as to become a tripping hazard.
 7. Hazardous materials must be identified, stored and handled in accordance with the Workplace Hazardous Materials Information System (WHMIS) regulations in Canada or Globally Harmonized System (GHS) in the US.
 8. Never work alone in isolated areas unless arrangements have been made for periodic checks with another person.
 9. Underground utilities must be located with the use of utility maps and hand-digging procedures, prior to digging mechanically.
 10. Entry into excavations greater than 4 ft. deep is strictly prohibited, unless it is sloped or shored.
 11. Confined space entry procedures must be followed when entering a confined space.
 12. Fighting, scuffling, horseplay, practical jokes and theft are prohibited.
 13. The use of alcoholic beverages and drugs (including prescription or over the counter medications which may cause impairment) is strictly forbidden on the job or job-site. No person shall enter a job site while his or her ability to

work is impaired.

14. Smoking in non-smoking areas (offices, plant offices, shops, vehicles, flammable areas) is strictly forbidden. The only exception to this rule is if a worker is riding in a vehicle alone and there is adequate ventilation available.
15. No worker shall ride on the outside of equipment unless the vehicle has been designed or modified for this purpose. All workers are to ride in the cabs of vehicles.
16. Seatbelts must be worn when operating ROPS equipped machinery, and company vehicles.
17. Never do maintenance or work under, on, or around a piece of running equipment. Shut it off and lock it out until your work is completed.
18. No worker shall operate damaged tools, equipment or machinery. If it is not operating correctly, or needs maintenance, "tag it" out of service, fill out an equipment repair form, and return it to the Equipment Manager.
19. No worker shall operate or use any equipment in a manner that endangers themselves or other workers. Only persons properly trained and authorized by their Supervisor shall operate any equipment or machinery.
20. Workshop machinery fitted with safety devices must not be removed except under the direct supervision of the LS of the Workshop. Control of the safety equipment and its positions is under responsibility of the operators before using machinery.
21. Tools are not to be stored on machine beds while the machine is running.
22. Compressed air must never be used for blowing dust or swarf off clothing, skin or machinery. Incorrect utilization of compressed air may cause embolism, blindness or deafness to personnel and damage to nearby machinery.
23. People who will use the machinery in mechanical laboratories must have training in machine tool operation.
24. No person should work alone. In certain situations people may establish a buddy system where people located in other parts of the building are responsible for checking to see that the shop user is safe at all times.

25. Comply with all the requirements of the Safety Program, WorkSafeBC and other applicable regulations.

FINAL WORD

The most important concept to remember is that you are responsible for your own safety and the safety of others. Most safety practices are common sense. Unfortunately, they can be forgotten or overlooked unless you make safe practices a habit or an instinct.

Job Hazard Assessment Vs. Safe Work Procedures Meeting Kit

WHAT'S AT STAKE?

A Safe Work Procedure (SWP) is a document that is used to capture all of the information related to the safe execution of the task. The SWP includes information such as the name of the task, hazards associated with the task, personal protective equipment required, training required, references to regulatory requirements, and identifies the person (typically a Chairperson or manager) who has approved the procedure. They are an excellent tool for training and refreshing workers on the proper way to carry out the task. SWPs must be current within three years, accessible to workers at all times, and amended when necessary.

The Job Safety Analysis is the act of getting a group of qualified individuals (supervisors, senior employees, safety personnel) together to:

1. Observe a task being performed.
2. Identify the potential hazards for each step in the task.
3. Assess the risk potential and severity of each hazard.
4. Brainstorm appropriate controls according to the risk levels identified.

The JHA development team should then take the information gathered from conducting the Job Hazard Analysis (or Analyses), and write an official Safe Work Procedure. This Safe Work Procedure will in all likelihood be an exact copy of the latest iteration of the JHA. It is the document that should be approved by senior management and circulated among the workers. It is the roadmap for performing a task safely. It remains unchanged until a subsequent JHA (which should be conducted regularly) identifies a new hazard or comes up with a better control.

Overview:

The Difference between Job Hazard Assessment & Safe Work Procedures

They are the same thing, but represent different stages on a timeline. JHA is the Process, and the Safe Work Procedure is the outcome.

WHAT'S THE DANGER?

Safe work procedures are based on a task analysis which breaks down the job into specific steps and the conduct of a risk assessment on each of the steps to identify hazards, assess the level of risk and determine suitable control strategies. This information is then included in the operating instructions provided to the employee and utilised both in training and competency assessments.

Where to start?

1. Identify tasks that require safe work procedures
2. Develop safe work procedures for tasks that are likely to harm your workers if any risks are not addressed. Many tasks

are unlikely to expose your workers to risks, so documented safe work procedures are unnecessary.

3. Do a thorough inspection of the workplace and a complete review of all work tasks? Perhaps you have overlooked risks associated with:
 - handling chemicals
 - lifting and moving objects
 - working at heights
 - slips, trips and falls
 - housekeeping
 - electrical equipment.
4. Speak with your workers about the tasks they perform and identify those tasks that could place them at risk. Consider the aspects of each task that expose them to risk and determine the likely consequences if the risks are not managed. **This is known as risk assessment.**
5. Prioritize the tasks that require safe work procedures
6. Develop safe work procedures for the tasks that present the greatest risk and pose the most serious consequences, and gradually work through those that present less risk.

HOW TO PROTECT YOURSELF

Four basic stages in conducting a JSA are:

- selecting the job to be analyzed
- breaking the job down into a sequence of steps
- identifying potential hazards
- determining preventive measures to overcome these hazards

Develop safe work procedures as follows:

- **Involve your workers** – they are more likely to follow a safe work procedure if they have been involved in its development, and they will often know the best and safest way to perform a task. Involve those workers who are experienced in performing the tasks.

- **Identify the elements of each task and the associated risks** – grocery shopping involves preparing shopping list, driving to shop and parking, obtaining trolley and pushing to shelves, lifting items from shelves, placing shopping on checkout, placing bags back in trolley, loading boot, driving back to house, unloading boot and carrying to house and packing shelves.
- **Identify the hazards and risks that each of these activities pose to those performing the task.** Are there any risks of manual handling injuries from lifting and stacking? Is there the potential for vehicle accident, slips and trips etc?
- **Control the risks** – once the hazards and their associated risks have been identified and assessed, decide how to control them. Consider the most effective way of minimizing the risk of harm. Can the shopping be done in smaller loads, is an assistant required, can a trolley be used to carry the shopping from the car to the house?
- **Document your safe work procedures** – the easier your safe work procedures are to understand, the more likely your workers will follow them. List all the control measures you have identified, as a series of steps set out in the sequence they need to be used.
- **Distribute the safe work procedures for review** – have your experienced workers review the safe work procedures and make amendments as appropriate.
- Proper implementation of safe work procedures involves training and supervision.
- Your workers must be trained to do their work tasks safely and must demonstrate an ability to follow the safe work procedures. Simply reading the documented procedure is not enough and you must ensure that the safe work procedures are followed at all times. Discipline your workers when safe work procedures are not followed.
- Review your safe work procedures when there is a change to your workplace, or after an injury or near miss associated with the task. As a general rule, do a periodic review of all your safe work procedures to ensure they are current and effective. Involve your workers in this review.

Procedures:

- Safety Office will coordinate with the manager/supervisor to complete a job hazard analysis and risk assessment.
- Manager/supervisor will provide necessary resources (manager's/employee's time and space) to complete the analysis/assessment.
- Safety Office will retain record of the safe work procedures and the safe work procedures are reviewed with the manager/supervisor/employee.
- Manager/supervisor will provide training to employees in the safe work procedures and document the training. The Safety Office will be available for assistance if required.
- Manager/supervisor will ensure that the completed safe work procedures are followed, and are added to the job inventory for training new employees.

Record Keeping:

The Safety Office and manager/supervisor will keep all records for 5 years from date of implementation/training the following:

- Completed Job / Task / Hazard Analysis / Assessment Forms
- Completed Safe Work Procedures
- Training documentation

FINAL WORD

Ideally, all jobs should be subjected to a JSA. In some cases there are practical constraints posed by the amount of time and effort required to do a JSA. Another consideration is that each JSA will require revision whenever equipment, raw materials, processes, or the environment change.

Practices Vs. Procedures

Meeting Kit

WHAT'S AT STAKE?

A **Safe Work Practice** is more of a guideline helpful in performing non-standard activities in as safe a way as possible, such as using a portable grinder or ladder. They are commonly found in owner's manuals, industry guides, sample manuals, etc.

Safe Work Procedures are detailed step-by-step descriptions of how specific work-related activities (usually ones with associated high risk hazards) are safely performed from start to finish, (operating a fork lift, manhole entry, battery boosting, working alone). The procedure may be simply a series of steps, or a checklist where each step is checked off when completed. Standardized written work procedures can ensure that work is done safely.

Development

Safe work practices should be developed as a result of completing a job safety analysis (JSA) or a hazard risk assessment (HRA).

Safe job procedures are usually developed by management and workers as a result of a JSA/HRA, accident or incident investigation, and/or as a supplement to a safe work practice.

WHAT'S THE DANGER?

Every employee, whether they are full-time, part-time, and casual, contractors or agency staff has the right to work in a safe environment. Although your employer is mainly responsible for maintaining a safe environment, it is also the responsibility of employees to act responsibly and stick to the workplace health and safety rules and regulations.

Not all workplaces are safe, and millions of workers are put at risk every day, with some suffering serious and devastating injuries as a result of unsafe practices at work.

Risk assessment

All employers have a duty of care to their employees, but employees also have a responsibility not to put themselves in danger. Health and safety in the workplace is paramount and keeps everyone on or near the premises safe. Before you step foot in the workplace, your employer should have already carried out a risk assessment of the area in which you will be working as well as a risk assessment for the type of work you are going to do.

Types of accidents at work

There are a number of different dangerous practices and procedures that can lead to accidents happening in the workplace.

- Pedestrian and forklift traffic areas have not been separated resulting in injury.
- Failure to have ladders and stepladders footed or stabilized.
- Using ladders instead of scaffolding.
- Workers using inappropriate or poorly maintained tools for the job at hand.
- Workers operating machinery for which they have had no training.
- Workers carrying heavy objects without the appropriate training.
- Employers failing to illuminate working areas correctly, including walkways.
- Employers failing to fix potholes or unsafe floors.
- Employers not providing their workers with the appropriate safety gear to do their job.
- Workers being exposed to dangerous chemicals.
- Workers using tables and chairs when stepladders would be more appropriate.
- Employers not providing their workers with suitable Personal

Protective Equipment (PPE).

- Workplaces without cleaning procedures resulting in slipping and tripping hazards for employees.

HOW TO PROTECT YOURSELF

The best way to prevent injuries or illness in your workplace is to find the hazards that could injure people and fix them. You can do this by following four key steps.

Step 1 – Identify the hazard by looking around your workplace, talking to your workers, reviewing incident reports, researching particular tasks and issues, or using the Hazard identification checklist

Step 2 – Assess the risk by considering how severe the harm could be and how likely it is to happen.

Step 3 – Control the risk by eliminating the hazard if possible, or otherwise minimizing the risk as far as possible.

Step 4 – Review the controls regularly to make sure they're working as planned.

FINAL WORD

Employees should know, understand and follow all SWP and SJP that pertain to the specific work tasks being completed. Training should be provided to ensure competency. Training should include a theoretical and practical component as outlined in the "Safety Orientation and Training" element and documented in the employee's safety training plan.

COVID-19

This course will help you understand what COVID-19 is, who is at risk, how it can spread, what the symptoms are, what to do if you have symptoms, how you can prevent it, what to do at work and myths and facts about COVID-19.

Tree Trimmer Safety Pre-Check

Use this checklist to help you determine if you have safe work practices in place.

General Assessment	Yes	Not Yes	No
Visual tree assessment conducted assessing the condition of the tree.			
Site specific hazards identified: ☐ ground & weather conditions ☐ slips & trips ☐ drop zones ☐ power lines ☐ falling zones ☐ traffic ☐ chain saws ☐ insects ☐ chipper ☐ Others: _____			
Control measures implemented to address risks that may arise from all the identified hazards including: ☐ exclusion zones ☐ rigging system ☐ elevated work platform (EWP) ☐ specific plant ☐ traffic controls ☐ crane ☐ Other (see below) _____			
Appropriate equipment and system of work identified and communicated to crew.			
Worksite communication methods identified and communicated to crew. ☐ TWO-WAY radios ☐ whistles ☐ blue tooth helmet headsets ☐ mobile telephones ☐ hand signals ☐ Other: _____			
Exclusion and drop zones identified and made visible where practical to do so. ☐ warning signs ☐ hi-visibility hats ☐ barrier tape ☐ safety flags ☐ plastic barriers ☐ Other: _____			
Site specific information relating to hazards, potential risks and the control measures are communicated to workers in site specific induction or toolbox talk.			
Workers are trained and competent to perform all the tasks required of them such as <u>ground work</u> , climbing, chipping, stump grinding, use of chemicals, etc.			
Emergency procedures are in place, including aerial rescue procedures, and all			

Combustible Dust

WHO HAS A COMBUSTIBLE DUST PROBLEM?

Many employers are unaware of a potential explosive dust hazard in their workplace. By identifying and controlling dust explosion hazards, injuries, deaths, and costly damage can be prevented. Some of the industries that could have a combustible dust hazard include:

- Agriculture
- Chemical
- Forest and furniture products
- Metal processing (e.g. aluminum, magnesium, zinc)
- Organic dust producers or users (e.g. working with fine dusts of candy, dried blood, paper, pulp, soap, spices, starch, sugar, flour, and feed)
- Paper products manufacturers
- Pharmaceuticals
- Plastics
- Producers or users of coal or other carbon dusts
- Recycling operations (e.g. metal, paper, and plastic recycling operations)
- Tire and rubber
- Textile
- Wastewater treatment (biosolids)
- Wood dust producers

What Makes Combustible Dust an Explosion Hazard?

Combustible dusts become an explosion hazard when they are suspended in the air in the proper concentration in a confined space or semi-confined vessel, area or building.

With the oxygen present in the air, all that is needed is an ignition source for an explosion to occur.

Many variables can affect the explosibility of a dust. To fully assess the risk of a dust explosion, it may be necessary to have the materials involved tested by a specialized lab.

PRIMARY AND SECONDARY DUST EXPLOSIONS

An initial or primary dust explosion can lead to one or more secondary dust explosions within a facility. This can occur when the initial dust explosion in the processing equipment or vessel ruptures the enclosure and ignites settled dust in a nearby area. Such explosions have destroyed buildings, killed 119 workers and injured 718 workers since 1980.¹ In many of these cases, the employers involved were unaware of the hazard.

OSHA NATIONAL EMPHASIS PROGRAM

The Occupational Safety and Health Administration (OSHA) issued a directive (CPL 03-00-008) effective 3/11/08 initiating a Combustible Dust National Emphasis Program (NEP). This program requires OSHA offices to specifically target businesses with dust explosion hazards.

Catastrophic Fires have Occurred with the Following Kinds of Dusts

- Coal dust
- Nylon fiber
- Phenolic resin dust
- Plastic (polyethylene) dust
- Resin for fiberglass
- Rubber dust

The National Fire Protection Association (NFPA) states, “Any industrial process that produces a combustible material and some normally noncombustible materials in a finely divided state present a potential for a serious fire or explosion.”

CONDUCT A HAZARD ANALYSIS

You may have to seek professional help with the following:

- Recognize that you may have a combustible dust hazard.
- Look for processes that use, consume, or produce fine dusts.
- Look for accumulations of fine dust, including in hidden areas (such as inside ductwork or over suspended ceilings).
- Look for ways dusts can become dispersed in the air.

- Consider dust collectors, hoppers, and other equipment that can confine a dust cloud.
- Investigate the thermal stability of stored products.

CONTROL – THE MAIN CONTROL METHODS

- Prevent dust accumulations.
- Install special electrical equipment in areas with potential for explosive concentrations of combustible dust (Class II locations).
- Select and use industrial trucks properly.
- Implement proper procedures for the maintenance of ovens and process equipment.
- Select and install equipment safety devices.
- Install explosion relief venting devices.
- Design buildings, equipment, and ventilation systems properly (including bonding and grounding).

SAFETY MANAGEMENT

- Investigate fires and incidents.
- Train employees on Hazard Communication (including combustible dust hazards).
- Implement Process Safety Management.

Combustible Dust – Spanish

¿QUIÉN TIENE PROBLEMAS CON LOS POLVOS COMBUSTIBLES?

Muchos empleadores no están conscientes de los peligros potenciales de los polvos combustibles en sus sitios de trabajo. Se pueden prevenir lesiones, muertes y daños costosos identificando y controlando los peligros de explosiones de

polvos combustibles. Algunas de las industrias que pueden tener peligros de polvos combustibles incluyen:

- Agricultura
- Productos químicos
- Productos forestales y muebles
- Procesamiento de metales (por ejemplo, aluminio, magnesio, zinc)
- Productores y usuarios de polvos orgánicos (por ejemplo, quienes trabajan con polvos de dulces, sangre seca, papel, pulpa, jabón, especias, almidón, azúcar, harina y piensos)
- Fabricantes de productos de papel
- Industrias farmacéuticas
- Plásticos
- Productores o usuarios de carbón u otros polvos de carbón
- Operaciones de reciclado (por ejemplo, operaciones de reciclado de metal, papel y plástico)
- Llantas y hule
- Textiles
- Tratamiento de aguas negras (sólidos biológicos)
- Productores de aserrín de madera

¿QUÉ HACE QUE LOS POLVOS COMBUSTIBLES SEAN UN PELIGRO DE EXPLOSIÓN?

Los polvos combustibles se convierten en un peligro de explosión cuando están suspendidos en el aire en una concentración apropiada en un recipiente, área o edificio confinado o semi-confinado. Con el oxígeno presente en el aire, sólo se requiere una fuente de ignición para que ocurra una explosión.

Muchas variables pueden afectar la explosividad de un polvo. Para evaluar por completo el riesgo de una explosión de polvo, quizá sea necesario hacer pruebas de los materiales involucrados en un laboratorio especializado.

EXPLOSIONES PRIMARIAS Y SECUNDARIAS DE

POLVOS

Una explosión inicial o primaria de polvos puede desencadenar una o más explosiones secundarias en el sitio. Esto puede ocurrir cuando la explosión inicial de polvo en el equipo de proceso o el recipiente hace romper la estructura e incendia el polvo depositado en los alrededores. Dichas explosiones han destruido edificios, han causado la muerte de 119 trabajadores y lesionado a 718 más desde 1980.¹

En muchos de estos casos, los empleadores involucrados no estaban conscientes de los peligros.

PROGRAMA DE OSHA DE ÉNFASIS A NIVEL NACIONAL

La Administración de la Seguridad y Salud Ocupacionales (OSHA, por sus siglas en inglés) emitió una directiva (CPL 03-00-008) que entró en vigor el 11 de marzo de 2008 iniciando un Programa de Énfasis en Polvos Combustibles a Nivel Nacional (NEP, por sus siglas en inglés). Este programa exige que las oficinas de OSHA se dirijan específicamente a las empresas con peligros de explosión por polvos combustibles.

HAN OCURRIDO INCENDIOS CATASTRÓFICOS CON LOS SIGUIENTES TIPOS DE POLVOS

- Polvo de carbón
- Fibra de Nylon
- Polvo de resina fenólica
- Polvo de plástico (polietileno)
- Resinas para fibra de vidrio
- Polvo de hule

La Asociación Nacional para la Prevención de Incendios (NFPA, por sus siglas en inglés) indica, "Cualquier proceso industrial que reduzca un material combustible, y algunos materiales que normalmente no son combustibles, a partículas finas, presenta un peligro potencial de una explosión o incendio grave."

LLEVE A CABO UN ANÁLISIS DE LOS PELIGROS

Quizá sea necesario recurrir a la ayuda de profesionales para llevar a cabo lo siguiente:

- Reconocer que puede existir un peligro por polvos combustibles.
- Identificar los procesos que usan, consumen o producen polvos finos.
- Identificar las acumulaciones de polvos finos, incluyendo en áreas no visibles (tales como dentro de ductos o sobre cielos rasos suspendidos).
- Investigar las maneras en que los polvos pueden dispersarse en el aire.
- Identificar las fuentes de ignición.
- Considerar recolectores de polvos, tolvas y otros equipos que puedan confinar una nube de polvo.
- Investigar la estabilidad térmica de los productos almacenados.

CONTROL – LOS PRINCIPALES MÉTODOS DE CONTROL

- Prevenir la acumulación de polvos.
- Instalar equipos eléctricos especiales en áreas con el potencial de tener concentraciones explosivas de polvos combustibles (ubicaciones de Clase II).
- Seleccionar y usar los vehículos industriales correctamente.
- Implementar los procedimientos apropiados para el mantenimiento de hornos y equipos de proceso.
- Seleccionar e instalar dispositivos de seguridad en los equipos.
- Instalar dispositivos de venteo de explosiones.
- Diseñar los edificios, equipos y sistemas de ventilación correctamente (incluidas las conexiones a tierra).

ADMINISTRACIÓN DE LA SEGURIDAD

- Investigar los incendios y los incidentes.
- Capacitar a los empleados en la comunicación de los peligros

(Hazard Communication), incluyendo los peligros por polvos combustibles.

- Implementar la Administración de la Seguridad en los Procesos.
-

Do You Know This Plant?

IT'S TRIPLE LEAF...POISON OAK

Recognize it at a glance—by its triple leaf pattern with prominent veins and shiny surfaces.

Learn to recognize poison oak, avoid contacting it, and get rid of it when possible. Poison oak is a very hardy plant which has spread throughout most parts of the state up to altitudes of five thousand (5,000) feet. This plant has another peculiarity—it takes the form of a vine, a bush or a spindly plant. In some regions the leaves remain green during the entire time they are on the stem. In other areas the leaves change to various colors with the changing seasons. Learn to know it on sight—the plant with the triple leaf—because it is a very common plant in California.

IMMUNITY?

Some people are less susceptible than others.

CAUSES

Poisoning is caused by irritating oil found in all parts of the plant, including the roots and fruit.

How do you get “poisoned”?

- from contact with the plant.
- from tools and animals that have touched it.

- from smoke while burning poison oak.
- from your hands which touched the plant.

TREATMENT?

Much of the irritating oil of poison oak can be removed by washing with soap and water at the first opportunity. Several new medications and well-established remedies such as calamine lotion benefit some people but have little effect on others. Severe inflammation or bleeding should be treated by a physician.

IS THERE PROTECTION?

Several protective creams are available which form a barrier against the irritating substance in poison oak. These may be used before entering a poison oak area. Also there are injections or tablets, which provide protection to some people.

WHAT IS THE BEST ANSWER?

Learn to recognize poison oak, avoid contacting it, and get rid of it when possible. Use protective creams and protective clothing, such as long pants, long sleeves, gauntlets, and neckerchiefs. Wash contaminated clothing before it is worn.

Destroy the plants before entering an area to be worked. One to four applications of a poison oak eradicating chemical should kill the plants depending upon the one you select.

Apply the chemical with caution—it can be dangerous.

New Growth may sprout during a warm winter or anytime during spring. The first leaves are usually small, round, and deep red.

Spring leaves are light, bright green with whitish-green flowers clustered on the stems.

Summer brings yellow-green, pink or reddish colors to some of the leaves with small white or tan berries following the flowers.

Fall fruit becomes darker, dried and wrinkled, and leaves turn

bright red or russet brown.

Winter leaves and seeds fall, leaving stick or whip like stems or climbing vines.

All Seasons may bring many color changes such as yellow, pink, brown, or combinations with those shades previously mentioned.

Do You Know This Plant? – Spanish

LA HIEDRA VENENOSA TIENE UNA HOJA TRIPLE

Reconózcala a la vista—la hoja triple es brillante con venas prominentes.

Aprenda usted a reconocer la hiedra venenosa.

Evite Contacto Con La Mata Y Destrúyala Cuando Sea Posible. La hiedra venenosa es una mata resistente que se ha desarrollado por casi todas partes del estado hasta alturas de cinco mil (5,000) pies. Esta mata tiene otra peculiaridad—toma forma de enredadera, de arbusto y de mata largucha. En algunas regiones las hojas se quedan verdes durante todo el tiempo que están en el tallo. En otras regiones las hojas cambian a varios colores con las estaciones del año. Aprenda a conocerla de vista—la mata con la hoja triple—porque es una mata bastante común en California.

¿HAY INMUNIDAD?

Algunas personas son menos susceptibles que otras.

¿QUÉ ES LO QUE PRODUCE EL VENENO?

La hiedra venenosa tiene un aceite irritante que se halla en todas partes de la mata—hasta en la raíz y en la fruta pequeña.

Esto es el veneno.

¿Cómo se envenena una persona?

- con ponerse en contacto con la mata.
- con manejar herramientas y animales que han tocado la mata.
- con el humo de la hiedra venenosa que se ha quemado.
- con tocar el cuerpo después de haber tocado la mata.

¿QUÉ TRATAMIENTO HAY?

Mucho del veneno se puede quitar de la piel si se lavan bien inmediatamente con agua y jabón. Hay muchas medicinas y remedios conocidos como loción calamina que ayudan a muchos pero tienen poco efecto en otros. Si ocurre inflamación o empieza a sangrar, es necesario ver a su médico.

¿HAY ALGUNA PROTECCIÓN?

Se encuentran varias cremas que protejen la piel. Se pueden usar estas cremas antes de entrar a lugares donde se halla la mata. También hay inyecciones y pastillas que protejen a muchas personas.

¿CUÁL ES LA MEJOR SOLUCIÓN?

Aprenda usted a conocer la hiedra venenosa. Evite tocarla. Use cremas que protejan la piel. También use ropa que le proteja su persona. Es una buena idea ponerse pantalones largos, camisa con mangas largas, usar guantes y un pañuelo de cuello. Lave su ropa contaminada antes de usarla otra vez.

Destruya las matas cuando sea posible antes de entrar a trabajar a un lugar donde se encuentra la mata. Hay productos químicos para eliminar las matas; de uno a cuatro aplicaciones serán suficientes, depende en el producto que use. Aplique los químicos con cuidado porque pueden ser peligrosos.

Las primeras Hojas retoñan durante un invierno caliente y durante la primavera. Casi siempre las hojas son pequeñas, redondas y de color rojo oscuro.

En La Primavera las hojas son de un verde vivo y las flores son entre blancas y verdes.

En El Verano las hojas son entre amarillas y verdes y otras son rosas con bayas o fruto blanco o café claro.

En El Otoño la fruta pequeña se hace mas oscura, se seca y se arruga. Las hojas cambian a rojo o rojizo.

En El Invierno las hojas y semillas se caen dejando las ramas lizas.

Todas Las Estaciones tienen muchos cambios de colores como amarillo.

First Aid for Eye Injuries

The chance or severity of an eye injury can be reduced when workers recognize possible eye hazards, are trained to correctly use and care for eye protection equipment, and if they know what first aid to administer in the event of an eye injury.

Warning signs should be posted near any work area, machine, equipment or process area that requires industrial-quality eye protection. To assure optimum eye protection, the appropriate protective equipment should be selected – safety glasses, goggles, face shield, or helmet – and must meet Occupational Safety and

Health Administration (OSHA) and the American National Standards Institute (ANSI) requirements. Personal prescription eyeglasses should only be worn in conjunction with OSHA/ANSI-approved eye protection equipment.

Below are basic first aid instructions for common eye injuries.

Foreign Particles such as dust, dirt, metal or wood chips, and even an eyelash can cause eye abrasion and damage.

Lift upper eyelid outward and down over the lower lid to remove the particle or let tears wash the particle out. If neither action removes the particle, keep the eye bandaged loosely to stop eye movement then seek professional medical treatment.

DO NOT RUB THE EYE

Chemical Contact from solvents, paints, hot liquids, or other hazardous solutions can cause serious eye pain and damage.

Go immediately to the nearest emergency shower or water source. Hold the eye open as wide as possible with fingers and look directly into the stream of water. If a contact lens is in the eye, begin flushing over the lens immediately.

This may wash away the lens. Flush the eye continuously and gently for at least 15 minutes then seek professional medical treatment.

DO NOT BANDAGE THE EYE.

DO NOT USE AN EYE CUP.

CUTS AND PUNCTURES TO THE EYE OR EYELID

Cover the eye with a rigid shield without applying pressure to stop eye movement (the bottom half of a paper cup can be used), then seek professional medical treatment.

DO NOT WASH THE EYE WITH WATER OR OTHER LIQUID.

DO NOT RUB/PRESS/REMOVE THE EMBEDDED OBJECT.

Bumps and Blows can result in eye pain and swelling. Apply a cold compress for at least 15 minutes without putting pressure on the eye. Crushed ice in a plastic bag can be taped to the forehead to rest gently on the injured eye. If experiencing continued pain, reduced vision, or discoloration (black eye) which could indicate internal eye damage, seek professional medical treatment.

Light Burns from exposure to welding, laser, or other radiant

light may not be felt until hours later when the eyes begin to feel gritty or become red, swollen, and sensitive to light. Keep eyes closed and seek professional medical treatment.

Nothing can replace the loss of sight. Workers can protect their eyes and preserve their eyesight by wearing and caring for appropriate, approved protective eyewear and following proper first aid procedures when an eye injury occurs.

First Aid for Eye Injuries – Spanish

La probabilidad o la gravedad de una lesión de la vista puede reducirse cuando los trabajadores reconocen los posibles peligros para la vista, están capacitados para usar y cuidar correctamente los equipos de protección para la vista, y si saben qué primeros auxilios administrar en caso de una lesión de la vista.

Los avisos de advertencia deben colocarse cerca de cualquier lugar de trabajo, máquina, equipo o área de proceso que requiera una protección de la vista de tipo industrial. Para asegurar una protección óptima de la vista, se deben elegir los equipos protectores apropiados – anteojos de seguridad, gafas (goggles), máscara facial o casco – y esos equipos deben cumplir con los requisitos de la Occupational Safety and Health Administration (OSHA) y del American National Standards Institute (ANSI). Los anteojos personales con receta solamente deben llevarse puestos junto con los equipos de protección de la vista aprobados por OSHA/ANSI.

A continuación figuran las instrucciones básicas de primeros auxilios para lesiones comunes de la vista.

Las partículas extrañas como el polvo, tierra, metal o astillas de madera, e incluso una pestaña, pueden causar raspaduras y daños a

la vista.

Levante el párpado superior hacia fuera y hacia abajo sobre el párpado inferior para eliminar la partícula o deje que las lágrimas eliminen la partícula. Si ninguna de las acciones elimina la partícula, mantenga el ojo cerrado y vendado sin apretarlo, a fin de detener el movimiento del ojo, y después obtenga asistencia médica profesional.

NO SE FROTE EL OJO.

El contacto químico con solventes, pinturas, líquidos calientes u otras soluciones peligrosas puede causar serio dolor y graves daños a los ojos.

Vaya de inmediato a la ducha de emergencia o fuente de agua más cercana. Mantenga el ojo lo más abierto posible con los dedos, y mire directamente a la corriente de agua. Si hay un lente de contacto en el ojo, empiece a enjuagar por encima del lente de inmediato. Esto puede arrastrar el lente. Enjuague el ojo continuo y suavemente durante por lo menos 15 minutos, y después busque tratamiento médico profesional.

NO VENDE EL OJO.

NO USE UN LAVAOJOS.

CORTES O PERFORACIONES EN EL OJO O EL PÁRPADO

Cubra el ojo con un escudo rígido sin aplicar presión, a fin de detener el movimiento del ojo (se puede usar la mitad inferior de un vaso de papel), y después busque tratamiento médico profesional.

NO LAVE EL OJO CON AGUA O CON OTRO LÍQUIDO.

NO FROTE/PRESIONE/RETIRE EL OBJETO INCRUSTADO.

LOS SACUDONES Y GOLPES PUEDEN CAUSAR DOLOR E HINCHAZÓN EN LOS OJOS.

Aplice una compresa fría durante por lo menos 15 minutos sin aplicar presión al ojo. Se puede pegar con cinta hielo triturado en una bolsa de plástico a la frente para que descanse suavemente sobre el ojo lastimado. Si hay dolor continuado, reducción de la visión o decoloración (ojo morado) que pudieran indicar daños internos al ojo, obtenga tratamiento médico profesional.

Las quemaduras ligeras debido a la exposición a la luz de soldeo, láser u otra luz radiante pueden no sentirse hasta horas después cuando los ojos empiezan a sentirse “arenosos” o enrojecen, se hinchan o se vuelven sensibles a la luz.

Mantenga los ojos cerrados y busque tratamiento médico profesional.

La pérdida de la vista no tiene sustituto. Los trabajadores pueden protegerse los ojos y conservar la vista si se colocan y cuidan los equipos protectores para la vista que sean apropiados y estén aprobados, y si siguen los procedimientos adecuados de primeros auxilios cuando ocurre una lesión de la vista.

Forklift Safety Manual

INTRODUCTION

Forklifts, also known as powered industrial trucks, are an important part of material handling in many industries. Forklifts are also a source of serious accidents in the workplace. Injuries

and/or fatalities indicate that many workers and employers are not using or may be unaware of the correct forklift safety procedures.

The goal of this guide is to assist workplace instructors with forklift safety-training programs. This guide does not presume to cover every forklift safety hazard or situation and should be used as a supplement to the manufacturer's provided forklift-operating manual. Cal/OSHA regulations state that the employer is responsible for ensuring that each forklift operator is competent to operate a forklift safely. The employer is also responsible for certifying that each forklift operator is trained and evaluated, in accordance with Cal/OSHA regulations, before operating a forklift.

Training the Trainer

Cal/OSHA regulations require forklift safety instructors to possess a certain level of competency, experience, and forklift knowledge. Cal/OSHA's General Industry Safety Order (GISO), Section 3668 states, that:

"All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train powered industrial truck operators and evaluate their competence."

Some things to consider when deciding who will conduct training include having a forklift safety instructor who:

1. Communicates effectively.
2. Has completely reviewed and understands all of the applicable forklift safety regulations.
3. Is knowledgeable about different forklift designs, their uses in the workplace and experienced in operating them.
4. Is familiar with the conditions and hazards that are inherent in the workplace.
5. Is familiar with the safe operational procedures and activities that are associated with operating a forklift in the workplace. These procedures and activities include:
 - Battery-charging practices.

- Fueling the forklift.
- Lifting and transporting cargo.
- Working in enclosed spaces.
- Operating forklifts in loading dock areas.

6. Is able to objectively evaluate a forklift operator's performance in the workplace.

SECTION 1: FORKLIFT SAFETY TRAINING PROGRAM

An effective, compliant forklift safety training program must consist of a combination of formal instruction, practical instruction, and an evaluation of the forklift operator's performance in the workplace.

Formal Instruction (Classroom)

The formal instruction portion of the safety training should include a combination of various training methods—lectures, question and answer sessions, videos, and written materials. All training, written and spoken, must be presented in a language understood by all trainees. Formal instruction should also include a complete review of the Cal/OSHA forklift regulations that apply to the worksite. Classroom instruction includes:

1. Reviewing the applicable forklift regulations.
2. Presenting an appropriate forklift safety video or another type of training medium (computer program, audio/visual program, written material).
3. Conducting a question and answer session regarding forklift safety.
4. Administering a written forklift safety test.

Practical Instruction (Hands-On)

Practical or "hands-on" training is required by Cal/OSHA to certify forklift operators. This component, according to Cal/OSHA GIS0 Section 3668, must consist of "demonstrations performed by

the trainer and practical exercises performed by the trainee.” Not all situations or procedures are covered in this guide. The instructor should modify the training program to address the conditions found in the workplace, including the types of forklifts the trainee will be operating. The instructor must perform demonstrations for the trainees on all of the topics listed below. A verbal review neither conforms nor complies with the regulations. Hands-on instruction includes:

1. Training on the forklift safety check process. Each trainee should conduct a forklift safety check.
2. Erecting a forklift driving course. The instructor should observe each trainee completing the course, take observation notes, and review the notes with each trainee.
3. Training that covers the specific hazards and conditions present in the workplace. Examples include lockout/tagout, battery charging, fueling, operating forklifts in enclosed spaces, carrying loads, and elevating employees using a forklift.

Workplace Performance Evaluation

After the formal and hands-on instruction, the instructor must evaluate the operator’s performance in the workplace.

The instructor must observe each trainee performing normal workplace forklift duties, write down notes during the observation, and then review the notes with the employee.

Several sample training forms are included in this guide to assist with documentation and record keeping efforts. The employer must maintain the documents for at least three years after the date of the training.

Each forklift operator’s performance must be evaluated at least once every three years. Under certain conditions, refresher training must be provided more frequently.

Requirements are detailed in Cal/OSHA’s GISO Section 3668.

The effective forklift safety instructor combines different

training activities into the formal and practical components of the program as well as the workplace performance evaluation. Listed below is information regarding various safety-training activities that should be used to supplement the Cal/OSHA forklift regulations. This portion of the training guide is not comprehensive and not all situations or procedures are covered.

Video Training

People learn by different methods of instruction, including discussion, written materials, videos, and hands-on activities. Videos are versatile in that they include both audio and visual formats—some are even interactive. Showing a video about forklift safety helps maintain interest and capture attention.

If possible, the instructor should select a video that uses a setting similar to the workplace.

Written Forklift Safety Test

A forklift instructor needs to know if the trainees understand the information and can apply it to their work duties. One way to assess this is to administer a written test. A sample forklift safety test is included in this guide. When the trainees have completed the test, the instructor should review the answers with the group then keep the completed test for training documentation.

Conducting a Forklift Safety Check

Cal/OSHA regulations mandate that before each shift, the forklift operator must check the forklift for safety deficiencies. The instructor must give “hands-on” instruction to trainees on how to conduct a proper and thorough forklift safety check.

Forklift Driving Test

Forklift trainees must demonstrate a basic understanding of forklift operation as well as competent forklift driving skills. By observing a forklift operator navigating a planned driving course, the instructor can verify that the operator has the

skills necessary to safely operate a forklift. The instructor should then record the trainee's performance on the enclosed sample Forklift Operator Performance Test form, or a similar form.

Forklift Driving Course

The forklift driving test must be conducted on a forklift driving course, as required by Cal/OSHA regulations. A sample forklift driving course, which provides a variety of forklift operation activities, is included in this guide. The instructor should modify the course to simulate conditions the forklift operator may encounter in the workplace. Trainees should only attempt a forklift driving course after they have completed the formal and hands-on training segments. The employer is responsible for ensuring that each trainee is certified to operate every type of assigned forklift.

SECTION 2: FORKLIFT OPERATION AND SAFETY

In this section, various safety rules and operating procedures are reviewed. These rules and procedures, if applicable to the workplace, should be included in the forklift safety training program and are intended to supplement the Cal/OSHA forklift regulations. This section is not comprehensive and not all situations or procedures are covered. When preparing to conduct the forklift safety training, the instructor should consider additional hazards and safety rules that apply to the workplace.

Types of Forklifts

There are many different types of forklifts, which can vary in size, shape, and method of power. A forklift can be powered by an internal combustion engine using gasoline, diesel or propane gas (LPG) for fuel, or run on electricity from batteries. A forklift can have different attachments, depending on its specific use, such as fork extensions, drum clamps, lifting hooks, or a platform.

Forklift Stability

Forklifts are normally tall and narrow and may tip over easily, so operators must drive cautiously. Stopping a forklift is different from stopping a car. The two small wheels are the braking wheels, so forklifts do not stop quickly. The forklift is based on the concept of two weights being balanced on opposite sides of a pivot point with the forward wheels being the pivot point. This is the same concept as a teeter-totter.

The load on the forks must be balanced by the weight of the forklift. Every time a forklift picks up a load; the truck and load have a new combined center of gravity. The stability of the forklift is determined by the location of its center of gravity, or if the forklift is loaded, the combined center of gravity.

Forklift Limitations

Before driving a forklift, the operator must be aware of the load capacity the vehicle can safely accommodate and that the load center may change due to characteristics of the freight. This knowledge is critical because as the distance increases from the load center, the weight carrying load capacity of the forklift decreases. Before use, the forklift operator must also know the location of the forklift name plate, which lists its model number, load capacity marking, and type designation. The employer is responsible for maintaining these plates and ensuring that the information is legible.

Fueling

To prevent fire or explosion hazards, trainees must be instructed to:

- Not fuel tanks while the forklift engine is hot, running or smoking.
- Keep fuels away from ignition sources.
- Never smoke when near a fuel source or while fueling the forklift.
- Always wear the proper personal protective equipment while

fueling a forklift.

- Fuel forklifts in a location that has been designated as safe for fueling.

When changing a liquid petroleum gas (LPG) tank, operators must relieve pressure in the line before disconnecting it by shutting off the tank and running the engine to empty the line.

Forklift Use in Enclosed Areas

Using gasoline or liquid propane gas forklifts in enclosed areas may lead to a build up of dangerous, potentially fatal, carbon monoxide gas. Carbon monoxide is a toxic gas, emitted in the forklift's exhaust. An individual who is exposed to unacceptable levels of carbon monoxide may become ill due to a lack of oxygen. Carbon monoxide gas is odorless, tasteless, and colorless, and is often not detected until the individual becomes sick. To avoid the possibility of carbon monoxide poisoning, the use of electric forklifts is recommended in enclosed work areas.

High Rack Storage

Freight stored on high racks can be 20 feet or more above the ground which presents special hazards. The lighting in high rack storage areas must be adequate, the floor surface must be smooth and free of cracks, and the forklift operator must have ample space in which to maneuver the forklift. The loads must be balanced, stacked safely, and not tiered too high. The forklift operator must take extra care to maneuver the forklift safely and slowly while stacking or un-stacking freight stored on high racks. All forklifts that are used in high rack storage operations must be equipped with overhead protection.

Transporting Loads

Forklift operators should never move a loaded forklift if he or she cannot see in the direction of travel. Travel with the load trailing, if the load blocks the operator's front view. When traveling with a load, the forks should always be carried as low as possible. Operators must be aware of the height of the

forklift mast and should watch for low-hanging lights, pipes, ducts, and doorways that could present a hazard.

When ascending or descending inclines or ramps, operators should be instructed to drive the forklift slowly with the load upgrade. All employees should be reminded to never pass or stand under the elevated part of a forklift, even when it is unloaded.

Lockout, Tagout, and Blockout

Many workers are injured or killed by failing to lockout, tagout, and blockout the equipment they are operating. Forklift trainees should be given lockout/tagout safety training for cleaning, inspecting and repairing forklifts or when clearing it of obstructions. They should be taught to disconnect the battery during repairs to the primary electrical system and, if the forklift can store residual energy, to discharge the energy before beginning work on the electrical system. Trainees could be pinned or entangled in the equipment if the proper precautions are not taken.

Starting and Dismounting

Before starting the forklift engine, the operator should be seated in the forklift, with the seatbelt fastened. Operators should never start their forklift while standing to the side. Before dismounting, the forklift should be completely stopped with the controls in neutral, the parking brake engaged, and the forks fully lowered. When the operator travels more than 25 feet away from the forklift or if the forklift is out of the operator's sight, it is considered by Cal/OSHA to be "unattended." The power must be shut off with the controls in neutral, the parking brake set, and the forks fully lowered to the ground.

Elevating Employees Using a Forklift

Extra caution should be exercised when elevating other individuals with a forklift. A personnel platform, which is secured to the forks or the mast of the lift, must be used. This platform must have proper guardrails, a toe board, and be of a sufficient size

to accommodate the individual and the material being raised. The floor of the platform must be slip-resistant and free of holes that are larger than one inch in size. While the individual is elevated, the forklift operator must be at the controls and the forklift may only be moved to make minor positioning adjustments.

Workplace Conditions

Keep work environment as clean and hazard-free as possible. One way to help endure safe workplace conditions is to conduct safety inspections. An employee who has the authority to make corrections should conduct a safety inspection regularly. All floor-to-ground surfaces should be free of cracks, crumbling edges, and other defects. All workplaces should be well lit and free of clutter. If a blind corner is present, it should be eliminated if possible. When operating a forklift outdoors, operators should keep the forklift away from ditches, embankments, and holes.

Pedestrian Safety

Pedestrians and forklifts are a dangerous combination. If possible, forklift traffic areas should be separated from pedestrian traffic areas by a barrier. All employees should receive training about the dangers of working near forklifts. Forklift operators should use their horns to alert others when they are in the proximity of pedestrians. If the workplace noise level is high, forklifts should be equipped with flashing lights to alert others of their presence.

Battery Charging

Before charging batteries, check the forklift manufacturer's recommended charging instructions and wear the recommended personal protective equipment. Keep the battery charging area free from ignition sources that could present a fire hazard and well-ventilated so dangerous gases, fumes, and vapors do not build up.

Recordkeeping Infographic

Download this printable Infographic on Recordkeeping



INJURY REPORTING



RECORDKEEPING EXEMPTIONS



BOTH

Any employer (regardless of industry) that employed 10 or fewer employees at all times during the previous calendar year is exempt from the requirement to routinely maintain injury and illness records (OSHA 300 Logs).

ALL EMPLOYERS must report fatalities and the other serious injuries listed above to OSHA, regardless of company size or industry exemption.

A Safety Guide for Tree Trimmers

SAFETY INVOLVES EVERYONE

Do your part to keep you and your coworkers safe during tree-trimming activities:

- Attend all training so you can recognize, control, and avoid hazards.
- Report unsafe actions, conditions, and equipment.
- Think about what you're doing and what others are doing around you.

PREVENT TREE-TRIMMING RELATED INJURIES

In the tree-trimming industry, the risk of injury from lacerations, "struck-by" incidents, strains, slips and falls, and electrocutions is present every day on the job. These injuries can cause disability and days away from work. In some cases, they can be fatal. Many tree-trimming-related injuries can be prevented, if you follow the recommendations contained in this guide.

Lacerations are one of the most common injuries to tree trimmers. Tree branches and limbs, inadequate personal protective equipment, working carelessly or taking shortcuts are primary causes for lacerations. Lacerations can also result from the improper use of a tool or chainsaw.

PREVENTING LACERATIONS

Protect yourself against laceration injuries by wearing personal protective equipment including a hard hat, gloves, goggles, chaps (metal guards that cover the legs), and steel-toed boots.

- Inspect your cutting tool or chainsaw to insure that it's sharp and functioning properly; a sharp tool is less likely to slip and cause an injury.
- Hold your chainsaw with two hands, stand to the side of its cutting path, and be on guard for ricocheting limbs or chainsaw kickbacks.
- Work slowly; cut branches, limbs or logs below shoulder height and in a downward path.
- Carry your chainsaw below your waist level, with the engine off, and with the guide bar pointed down and to the rear.

“Struck-by” injuries occur when something hits you. You can be struck by ricocheting branches or by falling limbs, trees or equipment. You can also be struck by flying debris from chippers, grinders, and stumps.

PREVENTING “STRUCK-BY” INJURIES

- Protect yourself from “struck-by” injuries by wearing personal protective equipment including a hard hat, gloves, goggles or face shields, chaps, and steel-toed boots.
- Survey your surroundings, including workers nearby or below you who may need to be alerted to the consequences of your actions or movements.
- Remain on guard for ricocheting limbs or chainsaw kickbacks.
- Stand to the side of the chipper when feeding it.
- Clear debris off of and around stumps before making a cut.
- Stay out from under moving overhead loads or trimming operations.

Strains can occur when you work in awkward positions or when you handle heavy materials like tree stumps, branches or equipment. Repetitive work and vibrating tools can also lead to strain.

PREVENTING STRAINS

- Stay in shape. When your body is in good physical condition, you're less likely to suffer a strain injury.
- Keep the work activity as close to your waist level as possible; avoid over-reaching and awkward positions.

- Lift only what you can safely manage, following recommended lifting techniques. For heavy loads, get help from another worker or mechanical lifting device.
- Choose tools that are comfortable for you to use; store materials and equipment that can be easily accessed.
- Rotate physical activities and take periodic breaks when fatigued.

Slips and falls can happen for a variety of reasons. Slips occur when there's too little friction between your footwear and the walking surface. A slip can result if you wear improper footwear or if you walk carelessly on a wet, slick or unstable

Surface. Falls happen when your body is unable to maintain its center of gravity. Overreaching can cause you to fall, especially while working in an aerial lift. You can also fall if you use a makeshift support or set your ladder on uneven ground.

Improper, damaged or worn fall arrest equipment can also result in a fall.

PREVENTING SLIPS AND FALLS

- Wear recommended footwear with appropriate soles and treads.
- Watch where you're walking; walk carefully and deliberately.
- Maintain your balance and center of gravity; avoid overreaching.
- Conduct a safety check of tree-climbing equipment, ladders, and aerial lifts before use. Make sure that rope snaps are the locking type with at least 5000 pounds of minimum breaking strength.
- Insure that climbing equipment is placed on even, solid ground or is properly attached to recommended surfaces.
- Make sure you're secured and stable when climbing or cutting and that your cut will not severe your fall arrest system.

Electrocution is a risk to tree-trimmers who work around utility lines and for workers who use electrical tools and lifts. Workers can also receive electrical shocks from ungrounded equipment or when using electrical equipment in wet or damp conditions.

Preventing Electrocutions

- Conduct a site survey before beginning work to locate power lines; assume all power lines are energized.
 - Assure that equipment and workers maintain minimum required clearances from power lines; install a ground spotter or signal person to safety direct activities.
 - Use caution when moving aerial equipment across uneven ground or in high wind conditions that could cause equipment to sway into power lines.
 - Use only insulated and grounded electrical tools and equipment.
 - Avoid wet or damp situations when using electrical tools and equipment.
-

A Safety Guide for Tree Trimmers – Spanish

LA SEGURIDAD ES DEBER DE TODOS

Contribuya a su propia seguridad y a la de sus compañeros de trabajo durante todas las actividades de poda de árboles:

- Asista a todas las sesiones de capacitación para poder reconocer, controlar y evitar los peligros.
- Reporte cualquier actividad, condición o equipo no seguro.
- Piense lo que va a hacer y lo que otros hacen alrededor suyo.

PREVENCIÓN DE LESIONES EN LA PODA DE ÁRBOLES

En la industria de la poda de árboles, el riesgo de lesiones por laceración, incidentes de personal golpeado, esguinces, resbalones

y caídas, y electrocución están presentes en el trabajo todos los días. Estas lesiones pueden causar incapacidad y pérdida de días de trabajo. En algunos casos pueden hasta ser mortales. Muchas de las lesiones relacionadas con la poda de árboles pueden prevenirse si se observan las recomendaciones contenidas en esta guía.

Las laceraciones son una de las lesiones más comunes sufridas en la poda de árboles. Las ramas de los árboles, los equipos de protección personal inadecuados, un descuido al trabajar o el uso de atajos en el trabajo son las principales causantes de estas lesiones. Las laceraciones también pueden resultar del uso incorrecto de herramientas o sierras de cadena.

PREVENCIÓN DE LACERACIONES

- Protéjase contra las lesiones por laceración usando los equipos de protección personal, incluyendo el casco, los guantes, las gafas, las chaparreras (resguardos de metal que cubren las piernas), y botas con punta de acero.
- Inspeccione sus herramientas de corte o sierra de cadena para asegurar que estén afiladas y funcionando correctamente; una herramienta afilada tiene menos probabilidades de resbalar y causar una lesión.
- Sujete la sierra de cadena con las dos manos, colóquese a un lado del plano del corte y protéjase contra las ramas cortadas que caen y los contragolpes (o rebotes) de la sierra de cadena.
- Trabaje lentamente; corte las ramas o troncos por debajo del nivel de los hombros y en dirección hacia abajo.
- Lleve la sierra de cadena por debajo del nivel de la cintura, con el motor apagado y con la barra de corte apuntando hacia abajo y atrás.
- Las lesiones por golpe ocurren cuando algún objeto golpea al trabajador. Eso puede ser una rama cortada que cae o rebota, trozos de un árbol o algún equipo. El trabajador también puede resultar golpeado por desperdicios que vuelan de trituradoras de madera, molinos y trituradoras de troncos.

PREVENCIÓN DE LAS LESIONES POR GOLPE

- Protéjase contra las lesiones por golpe usando los equipos de protección personal, incluyendo el casco, los guantes, las gafas o careta, las chaparreras y botas con punta de acero.
- Observe sus alrededores, incluyendo a otros trabajadores en sus cercanías y debajo de usted. Quizás sea necesario avisarles de sus acciones o movimientos.
- Manténgase alerta contra ramas cortadas que rebotan o patadas de la sierra de cadena.
- Colóquese al lado de la trituradora cuando la alimente.
- Limpie los desperdicios de los alrededores de los troncos antes de hacer los cortes.
- No se pare debajo de cargas en movimiento, ni debajo de operaciones de poda.

Los esguinces pueden ocurrir al trabajar en posiciones incómodas o cuando se manejan materiales pesados, tales como troncos de árboles, ramas o equipos. Las tareas repetitivas y las herramientas que vibran también pueden causar este tipo de lesión.

PREVENCIÓN DE LOS ESGUINCES

- Manténgase en buenas condiciones físicas ya que así es menos probable sufrir un esguince.
- Haga todas las tareas de su trabajo lo más cerca posible al nivel de la cintura; evite alcanzar demasiado lejos y trabajar en posturas incómodas.
- Levante sólo los pesos que pueda manejar con seguridad, observando las técnicas recomendadas para levantar objetos. Para cargas pesadas, pida ayuda a otro trabajador o use un dispositivo mecánico para izar.
- Elija herramientas que le sean fáciles de usar; guarde los materiales y equipos en lugares de fácil acceso.
- Alterne las tareas físicas y tome descansos periódicamente cuando se fatigue.

Los resbalones y las caídas ocurren por una variedad de razones. Los resbalones ocurren cuando hay poca fricción entre el calzado y

la superficie del suelo. Puede ocurrir un resbalón si usted usa calzado inapropiado o si camina descuidadamente sobre superficies mojadas, resbalosas o inestables. Las caídas ocurren cuando su cuerpo no logra mantener su centro de gravedad sobre los pies. Alcanzar demasiado lejos puede hacer que usted se caiga, especialmente cuando trabaja sobre una plataforma elevada. Usted también puede caerse si usa un soporte improvisado o coloca una escalera sobre un piso desigual. Los equipos de protección contra caídas inapropiados, dañados o desgastados también pueden ocasionar caídas.

PREVENCIÓN DE RESBALONES Y CAÍDAS

- Use el calzado recomendado con suelas y dibujos apropiados.
- Mire a donde camina; camine con cuidado y pausadamente.
- Mantenga el equilibrio y la posición del centro de gravedad de su cuerpo; no trate de alcanzar demasiado lejos.
- Haga una revisión de seguridad de todos los equipos para subirse a los árboles, escaleras y plataformas elevadas antes de usarlos. Asegúrese de que los aditamentos para las cuerdas tengan cerrojo y resistan 5,000 libras como mínimo.
- Asegúrese de que los equipos de trepar estén colocados sobre un suelo plano y sólido, o que esté fijado a superficies recomendadas.
- Asegúrese de estar bien sujeto y estable al trepar o hacer cortes, y que el corte a ejecutar no alcance a su sistema de protección contra caídas.

La electrocución es un riesgo para quienes trabajan alrededor de tendidos eléctricos y para trabajadores que usan plataformas elevadas o herramientas eléctricas. Los trabajadores también pueden sufrir choques eléctricos de equipos no conectados a tierra o cuando usan equipos eléctricos en condiciones húmedas o lugares mojados.

PREVENCIÓN DE ELECTROCUCIÓN

- Lleve a cabo una revisión del sitio antes de comenzar su trabajo para ubicar los tendidos eléctricos; siempre se debe

asumir que todas las líneas eléctricas están vivas.

- Asegúrese de que los equipos y los trabajadores guarden las distancias mínimas de seguridad de los tendidos eléctricos; designe una persona en tierra para que vigile o haga las señas necesarias para dirigir con seguridad todas las actividades.
 - Tenga cuidado al mover equipos elevados a lo largo de suelos desiguales o cuando haya viento fuerte que pueda hacer que los equipos entren en contacto con los tendidos eléctricos.
 - Use solamente herramientas y equipos eléctricos aislados y conectados a tierra.
 - Evite trabajar en sitios húmedos o mojados cuando use herramientas o equipos eléctricos.
-

A Window to Glazier Safety

A WINDOW TO GLAZIER SAFETY

Glaziers install glass in windows, skylights, storefronts, and display cases, or on surfaces such as building fronts, interior walls, ceilings, and table tops. They sometimes also manufacture, install, remove, transport, and recycle glass products. This publication highlights common risk factors for glaziers and suggests ways to prevent an illness or injury due to glazier work.

RISK FACTORS

There are a number of risk factors in the glazier industry that account for most injuries, which include:

- Muscle strains.
- Slips, trips, and falls.
- Eye injuries.
- Caught-in or crushed by injuries.

- Bone fractures.

Additional risk factors associated with glazier work include:

- Handling agents that cause allergic-contact dermatitis or hives.
- Using epoxy, isocyanate or formaldehyde-resin adhesives, finishes, or sealants.
- Using harmful solvents, which can also be present in glues, inks, coatings, or degreasers.

The best way to prevent an illness or injury from glass handling and transporting is to ensure that all glaziers are informed of the potential hazards and are trained to understand the company's policies for safe work practices. The safety training should also include recommended personal protective equipment and the proper use and care of power tools, chemicals, ladders, and other equipment or vehicles.

Many of the glazes, color additives, fluxes, and material mixes contain hazardous substances such as lead, mercury, arsenic, solvents, and heavy materials. Some raw materials may contain silica, asbestos, or other harmful substances. Check with an Industrial Hygienist to find out what respirators or other protective measures should be used when handling these substances.

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) may vary by jobsite and task, but should include sturdy:

- **Gloves** to protect against cuts, punctures, burns, and injuries from solvents.
- **Wrist guards, gauntlets, and long sleeves** to protect the wrists and arms against sharp or broken glass edges.
- **Safety glasses** to protect eyes against sharp or broken glass edges.
- **Safety boots/footwear** to protect the foot from falling objects, punctures, or equipment.
- **Kneepads** to protect and cushion the knees when kneeling on hard surfaces.

- **Hard hats** to protect the head when potential head hazards exist.
- **Fall protection** to protect against severe and fatal injuries when working at heights.
- **Coveralls or an apron** to protect your clothes and skin from chemicals or sharp edges.
- **Respirators**, if recommended, to protect your lungs from inhaling hazardous substances.

ERGONOMIC WORK PRACTICES

- Prevent repetitive motion injuries by periodically changing positions, motions, or hand grips.
- Rotate tasks throughout the day to use different muscle groups and reduce fatigue.
- Check the load you plan to carry. Get help if the load is too big or bulky for one person.
- Use proper lifting techniques.
- Keep your back straight, don't twist when lifting, lowering, or carrying a load.
- Bend your knees when lifting or lowering a load.
- Keep the load close to your body.
- Minimize lifting and carrying by using mechanical lifting devices such as carts, hand trucks, pallet lifters, or forklifts to move materials around.
- Practice "team lifting" with heavy or awkward loads. Choose a team leader and communicate all actions among the team members. Try and use workers of approximately the same height so that weight is evenly distributed.
- Elevate glass and working material off the ground and onto a tailgate, table, or other comfortably raised surface height on which to work.
- Use adjustable tables and seating to get your work at the optimal height to prevent back injuries due to bending or knee injuries due to kneeling.
- Adjust your workstation so you can maintain a neutral posture and a straight back.
- Keep your work and often-used items close to you to avoid reaching.

- Use mechanical caulking guns, when possible.

TIPS TO AVOID INJURY

- Pay attention! Carelessness is a major cause of injury.
- Slow down. Take your time to do the job safely.
- Think the job through before you begin a task.
- Lift only what you can safely control. Get help with heavy loads from another worker or a mechanical lift device.
- Inspect power tools before use. Make sure all cutting edges are clean and sharp and that safety guards are in place. Check that power and extension cords are in good condition.
- Inspect ladders before use. Assure all parts are in good repair. Clean ladder steps and bottoms of footwear and secure the ladder in place before climbing.
- Use recommended personal protective equipment.
- Use recommended fall protection devices when working at heights such as elevated platforms or scaffolds.
- Correctly use and maintain vacuum cups.
- Practice good housekeeping.
- Sweep up debris, broken product, and spilled materials.
- If you sweep up sharp materials, handle them only with a plastic dust pan.
- To prevent slips, trips, and falls, clean up spills of liquids and dry materials immediately.
- Dispose of glass scraps properly.
- Place scraps in labeled, puncture-resistant containers.
- Ensure scraps fit completely inside containers.
- Avoid drugs (even prescription) and alcohol use when handling glass.

SAFETY CHECKLIST

You can prevent injuries when glazing. Take responsibility for working safely. Read the statements below and make sure they apply to you:

- I think about what I am doing at work.
- I do not take shortcuts.

- I use and properly care for the recommended personal protective equipment for the job.
 - I inspect all tools and equipment before use to assure they are in good working condition and that safety guards are in place.
 - I inspect my jobsite for potential hazards every day.
 - I correct or report unsafe work conditions to my supervisor.
 - I always put safety first.
-

A Window to Glazier Safety – Spanish

Los vidrieros instalan vidrios en ventanas, tragaluces, escaparates y vitrinas de tiendas, o en superficies tales como fachadas de edificios, paredes interiores, cielos rasos o tableros de mesa.

También pueden fabricar, instalar, desmontar, transportar o reciclar productos de vidrio. En este folleto se resumen los factores de riesgo que comúnmente encaran los vidrieros y se brindan sugerencias para prevenir enfermedades o lesiones causadas por trabajar en este ramo.

FACTORES DE RIESGO

La mayoría de las lesiones sufridas por los vidrieros se deben a:

- Rasguños.
- Resbalones, tropezones y caídas.
- Lesiones a los ojos.
- Fracturas de huesos.
- Trituración.

Entre otros factores que amenazan a los vidrieros se encuentran:

- Manejo de sustancias que causan dermatitis alérgica por contacto o urticaria.
- Uso de adhesivos, acabados o selladores epóxicos, de isocianatos o de resina con formaldehídos.
- Uso de solventes nocivos, los que también pueden estar presentes en adhesivos, tintas, recubrimientos o desengrasadores

La mejor manera de prevenir enfermedades o lesiones en el manejo y transporte de vidrios es asegurar que todos los vidrieros conozcan los peligros potenciales que encaran y estén capacitados para entender las políticas y las prácticas seguras de trabajo de la empresa. La capacitación de seguridad también debe incluir los equipos de protección personal recomendados, así como el uso y cuidado correcto de las herramientas motorizadas, sustancias químicas, escaleras de mano y demás equipos o vehículos.

Muchos de los acabados, aditivos colorantes, fundentes y mezclas de materiales contienen sustancias peligrosas tales como plomo, mercurio, arsénico, solventes y metales pesados. Algunas materias primas pueden contener sílice, asbesto, u otras sustancias dañinas. Consulte a un profesional de Higiene Industrial para informarse sobre cuáles equipos de respiración u otras medidas de protección deben usarse al manejar estas sustancias.

EQUIPOS DE PROTECCIÓN PERSONAL

Los equipos de protección personal (PPE, por sus siglas en inglés) pueden variar según el sitio de trabajo o la tarea, pero deben incluir diseños fuertes de:

- **Guantes** para protección contra cortaduras, pinchazos, quemaduras y lesiones por solventes.
- **Resguardos** para las muñecas, guanteletes y mangas largas para protección de las muñecas y los brazos contra bordes de vidrios filosos o rotos..
- **Gafas de seguridad** para protección de los ojos contra lesiones por esquirlas o astillas de vidrio, metal, polvo, suciedad o astillas de madera.
- **Botas/calzado de seguridad** para protección de los pies

contra objetos que caen, pinchazos o equipos.

- **Rodilleras** para proteger y acolchonar las rodillas al arrodillarse sobre superficies duras.
- **Cascos** para protección de la cabeza en cualquier sitio donde existan peligros de lesión en la cabeza.
- **Protección contra caídas** para proteger contra lesiones graves o mortales por caídas cuando se trabaja a gran altura.
- **Overoles o delantal** para protección de la ropa y de la piel contra sustancias químicas o bordes filosos.
- **Equipos de respiración**, si se recomiendan para protección de las vías respiratorias contra la inhalación de sustancias peligrosas.

PRÁCTICAS ERGONÓMICAS DE TRABAJO

- Prevención de lesiones por movimientos repetitivos cambiando periódicamente la posición, los movimientos o el agarre con las manos.
- Alternar las tareas a lo largo del día para usar diferentes grupos de músculos y reducir la fatiga.
- Verificar el peso de una carga antes de levantarla, o dividirla en porciones menores y más fáciles de manejar.
- Usar las técnicas apropiadas para levantar objetos pesados.
- Mantenga la espalda recta, no gire la cintura al levantar, bajar o llevar una carga pesada.
- Doble las rodillas al levantar o bajar una carga pesada.
- Mantenga la carga cerca del cuerpo.
- Reduzca la necesidad de levantar y llevar cargas pesadas con el uso de dispositivos mecánicos, tales como carretillas y carros de mano, transportadores de paletas o montacargas para mover los materiales.
- Levante las cargas pesadas o incómodas de manejar con la ayuda de otras personas. Elija a un líder de equipo y comunique a los miembros del equipo todas las acciones.
- Trate de emplear a trabajadores de aproximadamente la misma estatura de manera que el peso se distribuya equitativamente.

- Levante del suelo los vidrios y otros materiales de trabajo y colóquelos sobre una mesa, portón trasero de un camión u otra superficie de altura cómoda para trabajar.
- Use mesas y sillas ajustables para tener el trabajo a una altura óptima que ayude a prevenir lesiones por doblar la espalda o por estar arrodillado.
- Ajuste su estación de trabajo para poder mantener una postura neutral y la espalda recta.
- Mantenga su trabajo y los artículos de uso frecuente cerca de usted para evitar extender demasiado el cuerpo.
- Use pistolas mecánicas para enmasillado siempre que sea posible.

RECOMENDACIONES PARA EVITAR LESIONES

- ¡Preste atención! La falta de atención es una de las principales causas de lesiones.
- No se apresure. Tome el tiempo necesario para hacer su trabajo con seguridad.
- Planifique la tarea por completo antes de comenzarla.
- Levante sólo las cargas que pueda controlar con seguridad. Pida la ayuda de otros trabajadores para cargas pesadas o use un dispositivo mecánico para izar.
- Inspeccione las herramientas motorizadas antes de usarlas. Asegúrese de que todos los bordes de corte estén limpios y afilados, y que los resguardos de seguridad estén instalados. Verifique que los cordones eléctricos y las extensiones estén en buenas condiciones.
- Inspeccione las escaleras de mano antes de usarlas. Asegúrese de que todos los componentes estén en buenas condiciones. Limpie los peldaños y las suelas de los zapatos, y fije la escalera en su sitio antes de subirse a ella.
- Use los equipos de protección personal recomendados.
- Use los dispositivos recomendados de protección contra caídas cuando trabaje a gran altura, como en plataformas o andamios.
- Use y mantenga correctamente las asas por vacío.
- Practique el buen orden y aseo.

- Barra los desperdicios, productos rotos y materiales derramados.
- Si barre materiales filosos, manéjelos sólo con un recogedor plástico.
- Para prevenir resbalones, tropezones y caídas, limpie de inmediato los derrames de líquidos o materiales secos.
- Deseche debidamente los desperdicios de vidrios.
- Coloque los desperdicios en recipientes rotulados y resistentes a las perforaciones.
- Asegúrese de que los desperdicios queden totalmente dentro del recipiente.
- Evite el uso de drogas o medicamentos (aun los recetados) y alcohol cuando maneje vidrios.

LISTA DE VERIFICACIÓN DE SEGURIDAD

Usted puede prevenir las lesiones al trabajar con vidrios. Tome la responsabilidad de trabajar con seguridad. Lea las declaraciones que siguen y asegúrese de aplicarlas usted mismo:

- Pienso sobre lo que estoy haciendo al trabajar.
 - No uso atajos.
 - Uso y cuido debidamente de los equipos de protección personal recomendados que uso en mi trabajo.
 - Inspecciono todas las herramientas y equipos antes de usarlos para asegurar que estén en buenas condiciones de funcionamiento y que los resguardos de seguridad estén instalados.
 - Inspecciono mi sitio de trabajo cada día para detectar peligros potenciales.
 - Corrijo y reporto a mi supervisor cualquier condición insegura de trabajo.
 - La seguridad es siempre lo primero para mí.
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Accident Investigation A How-To Guide

WHAT IS AN ACCIDENT?

An accident is an unplanned occurrence that interferes with the orderly process of work resulting in an interruption of service, reduced production, property damage, personal injury or death.

WHY DO ACCIDENTS HAPPEN?

An accident can result from an unsafe action by a person, an unsafe physical condition, or a combination of both.

There are often multiple contributing factors involved in an accident—most of which can be controlled. Unless a thorough investigation proves otherwise, you should assume that an accident can be prevented.

WHY INVESTIGATE AN ACCIDENT?

Accident investigation is the method of examining the facts surrounding an incident and identifying the contributing factors, unsafe behavior, and/or unsafe conditions that led to the accident. Once contributing factors are identified, steps can be taken to eliminate a hazard or change a function to prevent similar accidents.

The root cause, or the underlying reason for the accident, is often a “systems failure.” Discovering a systems failure and correcting it is an important way for management to improve work practices and/or working conditions.

CONTRIBUTING ACCIDENT FACTORS

HUMAN BEHAVIORS:

PERSONAL BELIEFS OR FEELINGS

- Did not believe an accident would occur to him/her.
- Did not follow rules because he/she disliked rules and authority.
- Worked unsafely because of peer pressure.
- Enjoyed working fast, showing off, being “macho”, or “knowing it all.”

SYSTEM FAILURE

A “system failure” is an error, mistake, or lapse in management control (not grossly negligent or “serious and willful” in nature) that allows or contributes to an accident.

Examples:

- System failure.
- Lack of clear policy, rules, or procedures.
- Failure in hiring or placement procedures.
- Inadequate employee training.
- Lack of in-depth accident investigations that identify cause of accidents.
- Industrial health exposures not recognized or controlled.
- Rules not enforced.
- Safe behavior not reinforced.
- Necessary equipment or materials not provided.
- Production requirements too high.
- Poor safety communications (safety is not adequately publicized or promoted).
- Poor safety organization (authority, goals, responsibility, and accountability lacking).
- Inadequate knowledge and analysis of jobs and potential hazards.
- Lack of full management and supervisory support for the safety program.

DELIBERATE OR UNINTENTIONAL ACTIONS

Most people choose positive behaviors that bring a reward– self-

pride, management praise, or peer approval.

Others may choose negative/unsafe behaviors as a way to gain personal power, retaliate against management, or attract attention, such as:

- Made a conscious or unconscious decision to work unsafely.
- Did not remember or follow safety rules or recommended procedures.
- Engaged in horseplay or fighting.
- Used drugs or alcohol.
- Used incorrect equipment.
- Chose improper work methods.
- Used improper body mechanics.
- Did not ask for equipment, information, or assistance needed to do job safely.
- Make a mistake, was forgetful, lost focus, or was distracted.
- Used poor judgment or planning.

Lacked physical and/or mental capacity such that he or she was not able to safely perform the task. Examples include:

- Physical condition or health issues.
- Fatigue or excessive stress.
- Mentally unfocused or distracted.
- Task too complex or difficult.
- Environmental excesses, such as noise, dust, heat, etc.
- Substance abuse.
- Improper ergonomic interaction between the person and the task.

PHYSICAL CONDITIONS:

ENVIRONMENT, EQUIPMENT, FACILITY

- Inadequate inspections and/or corrections of hazard.
- An unsafe physical condition may be constant or unplanned and random.
- Defective equipment, tools, machines, or facilities.

- Missing safety equipment.
- Poor housekeeping.
- Uncomfortable temperatures.
- Extreme or unexpected weather conditions.

TRAPS

A trap is an unsafe condition created by poor workstation or job design that is likely to produce an unsafe action thus increased the probability of an accident.

- Personal protective equipment not provided or replaced.
- Confusing displays or controls.
- Poor adjustability, layout, or size of the work area.
- Inadequate mechanical lifting equipment.
- Uncontrolled slip/fall hazards.
- Excessive reaching, bending, stooping, twisting, contact pressure, vibration, repetition, or force.
- Awkward postures or movement as the result of poor tool or workstation design.
- Excessive heat, cold, or noise.
- Insufficient lighting or ventilation.

HOW TO CONDUCT AN INVESTIGATION

The primary focus of an accident investigation should be fact finding, and not fault finding. A reliable investigation requires accurate and unbiased reporting.

- Immediately secure the incident site to assure accurate documentation collection. Use photographs, videos, drawings, and measurements.
- Attempt to re-enact the events that led up to the incident.
- Document all aspects of the investigation in writing. Detail factual descriptions of what occurred, not interpretations of facts.
- Inform individuals why they are being interviewed. Ask the same questions of each person interviewed, make sure to perform interviews separately and confidentially.
- Once the investigation is concluded, communicate

recommendations and commit to corrective action.

- Notify OSHA/Cal-OSHA as required by law.
- Notify your workers' compensation insurance carrier if appropriate.

INTERVIEWING TIPS

- Put witnesses at ease. Explain that you are trying to find out how the accident occurred so that similar accidents can be prevented.
- Obtain the names, addresses, job titles, and phone numbers of all witnesses.
- Establish where witnesses were at the time of the accident. Were they positioned so that they could see or hear what they saw or heard?
- Determine what they actually saw. Many witnesses will "fill-in" details that they did not actually see after discussing the accident with other witnesses or through their own speculation.
- Identify what is fact and what is the theory in the report.
- Establish potential biases on the part of the witness, (e.g., witness is a good friend or enemy of the injured).
- Ask open-ended questions. Do not reveal information in the questioning process.
- Eliminate the atmosphere of intimidation or fear that may prevent a witness from frankly discussing the accident.

CHARACTERISTICS OF A RELIABLE INVESTIGATOR

- The investigator must be objective, knowledgeable, and thorough.
- The investigator must be willing to identify any "systems failures" and any of his/her own responsibility for the occurrence of the accident.
- Someone in higher management, who is knowledgeable in safety and accident investigations, must carefully review the investigation. If the investigation is not adequate, further investigation must be done.
- Document the positive. Do not document only the things that

went wrong. Include the positive actions that were taken by management to avoid the accident. This documentation may become important later, if the accident analysis becomes public.

- Find a solution. An accident analysis should always suggest a practical solution to help prevent the reoccurrence of a similar accident in the future. If no solution is proposed, the analysis is not complete. The solution should also be implemented within a reasonable time frame.
- Stick to facts and logic. An accident analysis should not include exaggerations, baseless speculations, logical inconsistencies, or anything that goes beyond the facts or a reasonable analysis of the circumstances.

CONFIDENTIALITY

Accident investigations should be a confidential management report. Investigations should also be confidential because sensitive information in the report could be misinterpreted or used to suggest that the employer has legal liability beyond the normal workers' compensation benefits.

While confidentiality is important, it does not mean that appropriate parts of an in-depth analysis cannot be shared with select employees or groups of employees.

If the 301 form incident report is required by Cal/OSHA record keeping regulations and an employee asks to see a report concerning their injury, he or she must be given a copy of the 301 report by the end of the next business day.

COMPLETE NECESSARY PAPERWORK

Know what necessary paperwork should be completed and by whom. Reporting requirements may differ depending on the type of business and/or established company policy. Complete reports thoroughly, correctly, and submit them in a timely manner.

If an employee has a "serious injury", it must be reported to Cal/OSHA within eight hours after the employer knows that it has

occurred. A serious injury is any injury that involves one or more of the following conditions: hospitalization which lasts more than 24 hours (other than for medical observation), amputation, or disfigurement.

All injuries requiring more than first aid should be reported to your workers' compensation carrier.

CONCLUSION

An effective accident investigation program is one of the most important elements of an Injury and Illness Prevention Program. A thorough accident investigation typically reveals information that can be used to prevent future accidents and safeguard individuals.