

Emergency Action Plan, Machine Guarding, Compressed Air, Distracted Employees, Utility Knife Safety, Lockout Tagout Affected, Pallet Jack Safety, Working Around Automation

Emergency Action Plan (EAP)

An emergency action plan (EAP) is a written document that acts as a blueprint or guide to help facilitate and organize both employer and employee actions during workplace emergencies. Well-developed emergency plans, along with proper employee training (to understand their roles and responsibilities) will result in fewer and less severe injuries/illnesses and less damage to the facility during emergencies. A poorly prepared plan and/or no employee training, will likely lead to a disorganized emergency response, resulting in confusion, injury, and damage.

This training session will help employees better understand how to prepare for and respond to emergencies in the workplace. Employees will learn about evacuation routes, emergency alarms, responding to fire or smoke, responding to a chemical spill, responding to natural disasters, etc.

When to sound the alarm:

Every employee needs to be prepared for emergencies and know how to safely respond to various workplace emergencies. Examples of some workplace incidents that will cause for alarm, and have emergency protocol take place are:

- Experience or anticipate an explosion
- Chemical spills or gas leaks
- Natural disasters
 - Tornado, Earthquake, Severe Weather
- Human Threats
- Workplace violence or terrorism
- Most common cause for emergency:
 - Fire
 - Smoke

Evacuation Procedures:

- Understand emergency alarm
- Listen for any specific instructions
- Follow the nearest exit route
- Know locations of fire extinguishers
- Proceed to the designated assembly area
- Assist others that may be in need of assistance

Emergency Alarms:

- Manual fire alarm box
- Public address system
- Phones or radios
- Air horn
 - One continuous blast means outside evacuation
 - Intermittent blasts mean inside collection
- Word of mouth/Intercom system

Emergency Routes:

- Should be unobstructed
- Keep dangerous items away
- Exit should be clearly visible and distinctive
- Non-Exit doors or passages need to be marked "Not an Exit"

- If they can be mistaken as an exit or passageway
- Be sure there is nothing obstructing the exit door from opening, like snow

Collection Points:

Outside Collection Points

- Ensure collection point does not block emergency vehicles
- Proceed directly to your designated meeting area
- Make sure you are accounted for

Inside Collection Points

- Should be a central location
- Should not be exposed to windows
- Management should bring a weather radio and phone access with them

Emergency Contacts:

- Emergency reporting procedures (who reports emergencies)
- Emergency contact information o 911 vs 9-911
 - Employee contact information
- List of employees for head count

What a Fire Needs to Burn:

- Fuel Source
 - Flammable liquids
 - Gasoline/Kerosene
- Ignition Source
 - Heat, flames, sparks, static electricity
- Oxygen
 - Present at all times in air

Fire Prevention:

- Keep dust under control
- Dispose of oily rags appropriately
 - Store in closed approved containers
- Don't allow combustibles to accumulate
- Keep emergency exits clear

Different Fires Need Different Treatment:

The National Fire Protection Association has classified fires into four main types. Remember to determine which type of fire/fuel source you're dealing with before you choose an extinguisher. All fire extinguishers are labeled to tell you which classes of fire they're designed to be used for.

Classes of Fires

- Class A – fires are the most common. They involve wood, cloth, paper, rubber, and plastics. Water or dry chemicals should be used to extinguish these fires. Do not use carbon dioxide extinguishers or those containing sodium or potassium bicarbonate.
- Class B – fires involve flammable liquids, gases, and greases. Foam, carbon dioxide, and dry chemical extinguishers should be used. Water fog and vaporizing liquid extinguishers may also be used.
- Class C – fires involve electrical equipment. Carbon dioxide and dry chemical extinguisher should be used. Do not use foam or water extinguishers.
- Class D – fires involve combustible metals, such as magnesium, titanium, zirconium, and sodium. These fires require special techniques to control. None of the extinguishers mentioned should be used.

Multi-purpose extinguishers (ABC) will handle all A, B, and C fires. **All fire extinguishers are labeled with either ABC, or A, or B, or C, so be sure to read the label.**

How to Use a Fire Extinguisher:

Remember the word PASS

- Pull the pin
- Aim the extinguisher nozzle at base of fire
- Squeeze the trigger while holding extinguisher upright
- Sweep the nozzle side to side, cover the area of the fire

Remember, fire extinguishers are for small fires only or to be used to help you escape the building. 10-pound fire extinguishers last between 7-15 seconds.

New Employee Question List:

When a new hire comes on board it is imperative that we are answering a few questions for them in how we conduct our EAP. After discussing this try frequently quizzing them as it will help if an emergency ever comes up. Examples of some new hire questions are:

- What are our alarms and where are they located?
- Where are the fire extinguishers?
- Where are our emergency exit doors in my area?
- Where are our collection points?
- Who is my direct supervisor for future questions?

Machine Guarding

Guards are installed on machines to protect operators and others in the area from injury. Today, most machines at most worksites are equipped with guards. The dramatic improvement in guarding over the past dozen or so years has meant fewer employees sustaining the crushing injuries that used to occur all too frequently.

Yet even today some operators find ways of putting themselves in danger by removing or bypassing machine guards or tampering with interlocks so they can operate their machines faster. *In this company, failure to use the guards provided is cause for disciplinary action.*

Here are some facts to show why it is important to properly guard your machine.

- 92,000 injuries per year from unguarded machines
- 18,000 serious injuries every year
- More than 3,000 amputations occurred between 2019-2020
- 800 deaths per year still occur on average by those who operate and maintain machinery

Potential Injuries Possible:

These are some examples of potential injuries that can come from improper guarding. All of these could have major factors with your quality of life, and personal life activities.

- Amputations
- Fractures
- Lacerations
- Crushing injuries
- Pinching injuries
- Cuts
- Burns
- Abrasions

Where Are The Hazards?:

Listed below are the main areas where contact with a piece of machinery can cause the most harm or potential death to a person. Recognizing these areas before starting work and making sure they are properly guarded will be the best way

to keep yourself and others safe from unnecessary harm.

Point of operation

- Where work is performed on a material to shape or manipulate it to its desired form.

Mechanical power transmission

- The components of the mechanical system that transmit energy to the part of the machine performing the work.

Other moving parts

- Any exposed moving component that could cause injury.

Where Hazards Occur:

There seem to be as many hazards created by moving machine parts as there are types of machines. Safeguards are essential for protecting workers from needless and preventable injuries.

A good rule to remember is, any machine part, function, or process which may cause an injury must be safeguarded. When the operation of a machine or accidental contact with it can injure the operator or others in the vicinity, the hazards must be either controlled or eliminated. Some examples of basic machine hazards that require safeguarding include:

- Point of operation
 - Rotating parts
 - Shafts, including shaft ends
 - Gears and pulleys
 - Collars, couplings, and cams
 - Nip/Pinch points
 - Rotating cylinders
 - Chains and sprockets
 - Belts and pulleys
 - Shear points
 - Hedge trimmers
 - Grain augers
 - Rotary mower blades
 - Crushing points
 - Presses
 - Unsecured materials and equipment
 - Heavy objects
 - Cutting actions
 - Band saws
 - Circular saws
 - Drill presses
 - Lathes and mills
 - Flying chips, scrap metals, or sparks
- Mechanical power transmission
- Other moving parts

Most Common Safety Measures:

- Permanent guard - These guards should only be removed by lockout tagout authorized employees.
- Interlocking guard - The machine will not run unless all guards are placed in their proper position for operation.

- Palm Press – A device forcing an employee to use both hands to press two buttons simultaneously to operate a machine.
- Distancing guards and Tools - Forces employees to stay out of the area in which work is being performed by the machine, thus preventing contact.

Rules to remember:

1. Do not operate without a guard
2. Do not bypass a guard
3. Shutdown during service
4. Never reach into operating equipment
5. Use appropriate protective equipment such as distancing guards or PPE
6. Maintain machinery properly
7. Give yourself “An O.U.T.” by never reaching
Around, **O**ver, **U**nder, or **T**hrough guards

Best Practice for Operation (Machine Operation Check List):

Breakdowns, jammed work, and broken parts sometimes cause us to forget ordinary safety procedures. Very often, to remedy these conditions it is necessary to get into out-of-the-way places. During these situations, use extreme caution. Use a push stick or block to help remove pieces.

Guards are there to prevent injuries and should never be tampered with. It is to everyone's advantage to make sure all guards are placed properly—and it pays to double-check; hands, arms, and lives are saved that way. If you see a piece of equipment without a guard, or any other unsafe condition, report it to your supervisor immediately, whether the equipment is in your work area or elsewhere. When working with machinery, you should also do the following:

- Before turning on the machine, check that guards are in place at:
 - Exposed points of operation
 - Ingoing nip points
 - Blades
 - Rotating parts including drive components (chains, belts, pulleys, etc.)
 - Any operating points that send off flying chips or sparks
- Never remove or defeat safeguards. Majority of amputations are the result of operators removing or defeating safeguards.
- Never operate a machine that is missing a guard. Never operate a machine that is not equipped with adequate point-of-operation safety guards or safety devices.
- Never leave machines unattended with parts still moving. Never leave a machine that is still on or has been turned off but is still coasting.
- No loose clothing, long hair, or jewelry. Confine or tie back all loose clothing, long hair, and jewelry.
- Never reach around or under a guard. You are defeating the guard's purpose!
- Don't use gloves. They can interfere with a precise grip or get caught in pinch points or the point of operation.
- Check machines before use. If anything seems to be missing or not working properly, report it.
- Lock out the machine if a guard or safety device needs to be removed.

Abrasive Grinding Wheels:

A common piece of equipment that's used throughout many facilities in general industry is the abrasive grinding wheel. When it comes to properly guarding abrasive grinding wheels, the guarding must meet the following minimum general requirements:

- Resting Guard
 - Set at an 1/8 inch from the wheel

- Tongue Guard
 - Set at a 1/4 inch from the wheel
- Adjustable shields do not replace or substitute for a mandatory tongue guard

Lockout/Tagout

When a machine requires maintenance or repair, energy (pneumatic, hydraulic, electrical, or mechanical) must be turned off and locked and tagged with a label to protect workers from accidental machine start-up or unexpected energy release. Lockout and tagout procedures are used to warn employees and ensure that the electrical power is properly disconnected. Only qualified, authorized employees can disconnect the source of power and lock and tag it. There are two types of employees when you are talking about lockout/tagout:

- Authorized – is that employee who can physically lockout a piece of equipment (usually a set-up person or a maintenance person). Unless you have been trained in proper lockout procedures you are not authorized to lockout equipment.
- Affected – is the employee that is affected by the equipment being lockout (machine operator).

Locks and tags are used for everyone’s protection against electrical dangers. **For your safety and others, never remove or ignore a lock or tag.**

Responsibilities of Being Lockout/Tagout Affected:

If you operate or use machinery or equipment on which servicing, or maintenance is being performed under Lockout/Tagout, or you work in an area in which such servicing or maintenance is being performed, your job qualifies you as “affected”. As an “affected employee”, it’s your primary responsibility to report any machinery or equipment issues and leave the machinery/equipment alone while it’s being serviced or repaired. Some of your main responsibilities include:

- Notifying maintenance of issues
- Leaving locks, tags, and equipment alone

Lockout Affected:

As an “affected employee”, you also understand how to respond:

- Stay clear of the area and wait for further commands
 - If possible, vacate the area entirely
- Talk with management about what to do while your machine is under lockout tagout
- Do not touch locks, tags, or place any other lock on machinery
 - Do not assist lockout tagout authorized employees with any part of the lockout tagout process
- If you are not trained, you are not allowed to be involved

Lockout Authorized Procedures:

To safely apply energy control (Lockout/Tagout) procedures to machinery or equipment (using Lockout/Tagout devices), “authorized employees” must perform certain procedures, in a specific order, before servicing or performing maintenance on the machinery/equipment. These procedures are:

1. Notification of employees: “Affected employees” should be notified of the planned lockout or tagout before controls are applied.
2. Preparation for shutdown: Before an “authorized” or “affected employee” turns off a machine or equipment, the “authorized employee” must have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.
3. Machine or equipment shutdown: The machine or equipment must be turned off or shut down using the procedures established for it to avoid any additional or increased hazards to employees as a result of the machine or equipment stoppage.

4. Machine or equipment isolation: All energy-isolating devices that are needed to control the machine's energy source must be located. These devices must then be used to isolate the machine or equipment from its energy source.
5. Lockout or tagout device application: Lockout or tagout devices must be affixed to each energy-isolating device by "authorized employees". Lockout devices where used, must be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position. Where tagout devices are used, it must be affixed in a manner that will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.
6. Stored energy: After the energy-isolating device has been locked out or tagged out, all potentially hazardous stored or residual energy must be relieved, disconnected, restrained, or otherwise rendered safe.
7. Verification of isolation: Before any work begins on machines or equipment that have been locked out or tagged out, an "authorized employee" must verify that the machine or equipment has been properly isolated and deenergized.
8. Release from Lockout/Tagout

Utility Knife Safety

Utility knives can be some of the most important tool used in any manufacturing work. Especially while doing any warehouse work, having a good sharp knife can make any tedious job simpler. Because of this there are a lot of potential hazards to come from use of them. This training goes through the some of the smaller risk that comes from improper use of a utility knife.

What is a risk?

Utility knives account for the majority of hand tool injuries.

Injuries can result in:

- Stitches
- Infections
- Permanent nerve damage
- Amputation
- In extreme cases, death

Handling Utility Knife:

While handling your utility knife make sure you are giving full focus to your task, and keeping in mind these safety guidelines:

- Always use a sharp blade
- Replace regularly if need be
- Always cut away from you
- Wear cut resistant gloves

If Injured by A Utility Knife:

- Report injuries to management immediately
- Use the bloodborne pathogen kit to clean up bodily fluids

Compressed Air Safety

Compressed air is used in a lot of power tools, and devices for machinery throughout most plants. Long exposure and improper use can cause major long turn injuries. These examples will give you a better understanding with what uses compressed air, and the injuries that can come from this specific energy.

Compressed Air Uses:

Make sure to check your tools for any knicks in your line, and leakage from the tools before each use. If you have any damage, make sure to replace your tools/lines immediately. Some examples of air powered tools are:

- Powered Hand Tools
 - Drills
 - Wrenches
 - Hammers
 - Sanders
- Air Nozzles
 - Cleaning workspaces
 - Clearing parts
 - Blow-down processes

Hazards and Requirements:

Working around compressed air comes with a certain set of hazards. Keeping a close eye on some restrictions placed by OSHA will keep your equipment running longer, and the work environment safer. These requirements are:

- Levels should be lower than 30psi when used for cleaning or clearing purposes
- Air nozzles need to be OSHA approved
- Should never be used to clean clothes or oneself
 - 5-10 psi can cause serious injuries
- Never point at other employees
- Be aware of decibel levels
- Wear recommended PPE
 - Safety glasses, hearing protection, dust mask

Possible Injuries:

Potential injuries to come from compressed air are:

- Ruptured lungs, stomach, or intestines
 - 4 psi can rupture intestines
- Air directed at the skin can be painfully inflated
 - Can enter the bloodstream and cause cardiac arrest
- Blindness can occur with 12 psi as well as:
 - Dislodge eye from socket
 - Inflate part of eye
 - Contaminants can become stuck
- Ear drums can rupture at 40 psi from 4 inches away

Pallet Jack Safety:

Hand pallet jacks help you handle heavy loads safely without the need for extra hands or a forklift. They may not seem like dangerous pieces of equipment, but they can cause painful injuries. They are simple machines that take no certification to use.

Possible Hazards:

Some injuries that can come from hand pallet jacks are:

- Loss of control
- Dropped loads
- Crashing into equipment and people

Inspecting Pallet Jack:

Pallet jack inspections are as important as any daily inspections around the plant. Having a proper working tool will prevent damage to the load, company property, and yourself. Along with inspecting your pallet jack make sure to also give a good inspection to your pallet you will be grabbing. Steps for an inspection are:

- Look for cracks or a damaged frame
- Do not load more than the posted capacity
- Check for loose or damaged bolts
- Check that all wheels are in good shape and roll
- Test its ability to lift and release prior to loading

Inspecting Pallet:

- Make sure pallets are not broken
- Make sure items on a pallet are centered if possible

Safe Operation:

Keeping some basic rules on how and when to handle your pallet jack will keep your surroundings safe and keep yourself and others out of harms way. These guidelines are:

- Avoid undesirable terrain
 - Wet floors, gravel, cluttered aiseways
- Do NOT ride
- Do NOT carry passengers
- It is safer to push rather than pull
- Slow and steady
- Keep the load facing up hill when on a ramp
- Do NOT store in front of emergency equipment or doors
 - Fire extinguishers, alarms, emergency stops

Working Around Automation

Automation of activities can enable businesses to improve performance, by reducing errors and improving quality and speed, and in some cases achieving outcomes that go beyond human capabilities. With that it has become a great assist in manufacturing to help with production, however it can be dangerous to work around.

Automation Short Comings:

As streamline automation came make production it is not perfect. Some of the short comings of automation are:

- Typically demands more space creating congestion
- Lack of understanding of a machine can quickly result in an injury or death
- Requires all employees to understand how to operate safely around each individual automated process

If Involved in Automation:

- Inspect your machine distancing guards at the beginning of each shift
- Look to see if guards are in place and emergency stops are not blocked.
- Keep your area clear of obstructions and clutter
- Report foreseeable issues
 - If the machine is running hotter than normal
 - Odd noises that could indicated operational issue
 - Potential hazardous contact with the machine by employees passing by

Fighting Complacency:

Automation can make a job much easier which can lead to some leniency in the job. Keeping your focus on your task is just as important while working with automation as it would be with crafting the material with your hands. Some rules to follow are:

- Always be monitoring the automation process while in operation
- Stay off your phone unless necessary/approved by your department

- Do NOT enter an automation zone while in operation unless approved by management or properly trained
- Fight becoming distracted or zoning out where possible.

Distracted Employees:

Keeping ahead of the curve is important for any task while on the job. Some of the best way to keep your production up, and to help keep yourself safe in the process is by avoiding becoming distracted. Distractions allow for errors, and they normally are derived from comfortability with the job. Most injuries result from distracted employees, and it can really happen to anyone.

It's Human Nature:

Distraction is a natural course of our mind. Allowing your mind to wonder will keep your focus off your task and could cause gaps in your work.

- Our minds want to remain stimulated
- Jobs have their own repetitive or boring tasks
- Our brains will fight to remain focused on anything else other than these tasks if the environment you are in is unstimulating
- This situation results in a "Distracted Employee"
- Distracted employees are twice as likely to experience as serious injury in a given year

Keep Your Mind Stimulated:

Here are some examples of ways to prevent your distraction:

- Change up your workspace
- If allowed to listen to music; turn on a podcast, audio book, stand-up, or change up your music genre
- Collaborate with others
- "Gamefy Work" with personal goals or competitiveness with other employees
 - Don't let safety practices fall by the wayside though

Resources

- (OSHA, osha.gov)