

Effective Hazard Recognition and Control



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Table of Contents

Introduction	3
Safety committee inspection requirements	6
Inspection procedures	7
Controlling hazards	12
Recognizing hazards.....	14
Work surface and walkway hazards	15
Machinery hazards.....	19
Electrical hazards	29
Chemical hazards	33
Environmental hazards.....	39
Ergonomic hazards	47
Unsafe work practices	55
Well-being.....	60
Resources	61

Effective Hazard Recognition and Control

Oregon's Safe Employment Act states that, "Every employer shall furnish employment and a place of employment which are safe and healthful for employees therein . . ." (ORS 654.010).

Recognizing and controlling hazards is an essential part of this responsibility. Other essential aspects of an effective accident prevention program include training employees, monitoring work practices, and ensuring accountability.

Oregon OSHA defines a hazard as, "A condition, practice, or act that could result in an injury or illness to an employee" (OAR 437-001-0015). Note that this definition is not limited to physical conditions. Unsafe work practices and acts are, by far, the leading causes of workplace injuries and should always be included in a workplace hazard inspection.

Understanding this definition and following an established methodology for identifying and correcting hazards is essential to creating a safe work environment. This guide will provide you with solid ideas to elevate safety through your hazard identification efforts.

This guide is focused on conducting workplace inspections and is designed to help employers improve the effectiveness of these activities.

ORS – Oregon Revised Statutes

OAR – Oregon Administrative Rules

CFR – Code of Federal Regulations

Safety committee inspection requirements

For a more detailed explanation, go to:

http://www.cbs.state.or.us/osha/pdf/rules/division_1/437-001-0765.pdf

A well-run safety committee can have a powerful impact on the safety of an organization. OAR 437-001-0765 establishes guidelines and requirements for the formation and operation of safety committees in Oregon. One key requirement is that safety committees conduct hazard identification inspections at least on a quarterly basis. The following are a summary of the main requirements pertaining to inspections:

Training

Each person conducting safety and health inspections must be trained. The training should include your company's inspection procedures, hazards in the workplace and methods to correct hazards. It is also important that identifying and addressing unsafe work practices be a part of the inspection training.

Inspection procedures

Procedures need to be established to effectively conduct workplace inspections. This includes assigning areas to be inspected, documentation, and actions to be taken following the inspection. Additionally, someone should be accountable to ensure follow up and correction of hazards.

Quarterly inspections

Safety committee inspections need to be conducted on at least a quarterly basis and cover the entire facility each time. This can be accomplished by inspecting the entire facility with the inspection team or by splitting up the inspection team, with each group inspecting a different part of the facility. For larger and more complex facilities, an alternative method is to inspect one-third of the property each month.

Reviewing inspection reports

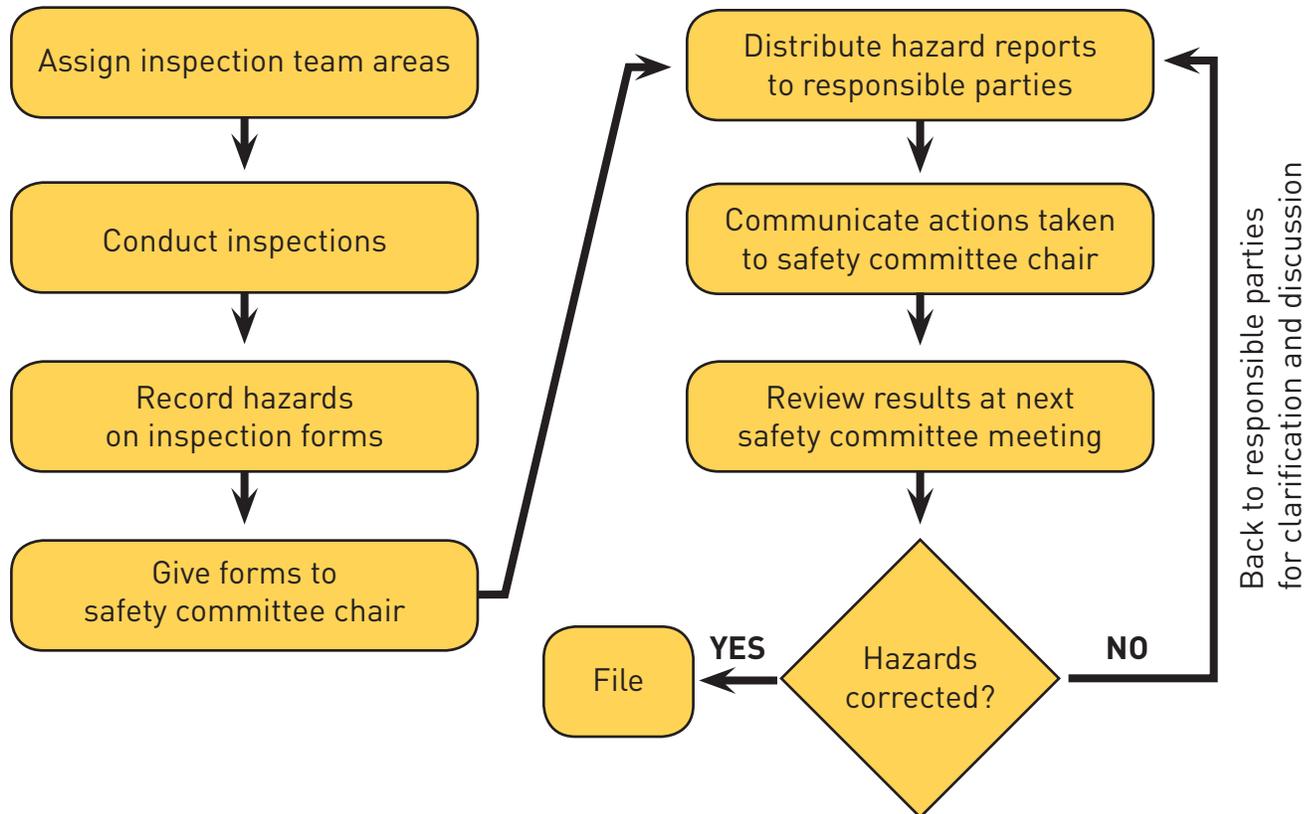
A part of establishing inspection procedures is to determine who will be reviewing the inspection reports and how recommendations will be submitted to management. Management needs to be involved in the inspection process so that recommendations can be approved and to make sure corrective actions are taken.

System for reporting hazards

In addition to the above inspection requirements, a system needs to be established that allows employees an opportunity to report hazards and submit safety- and health-related suggestions. The classic example is a safety suggestion box. Other examples include creating an email address specifically for making suggestions, suggestion competitions, direct communications, and more.

Inspection procedures

A variety of methods are employed when conducting inspections; some are very informal, while others are quite elaborate and methodical. The following model is somewhere in between in that it combines simplicity with accountability and follow up to ensure hazards are corrected in a timely manner.



Assign inspection team areas

Individual inspection team members are assigned to specific areas within the facility. In a small operation, the entire inspection team may visit all areas of the facility. Larger operations may need to parcel out areas for smaller inspection teams.

Conduct inspections

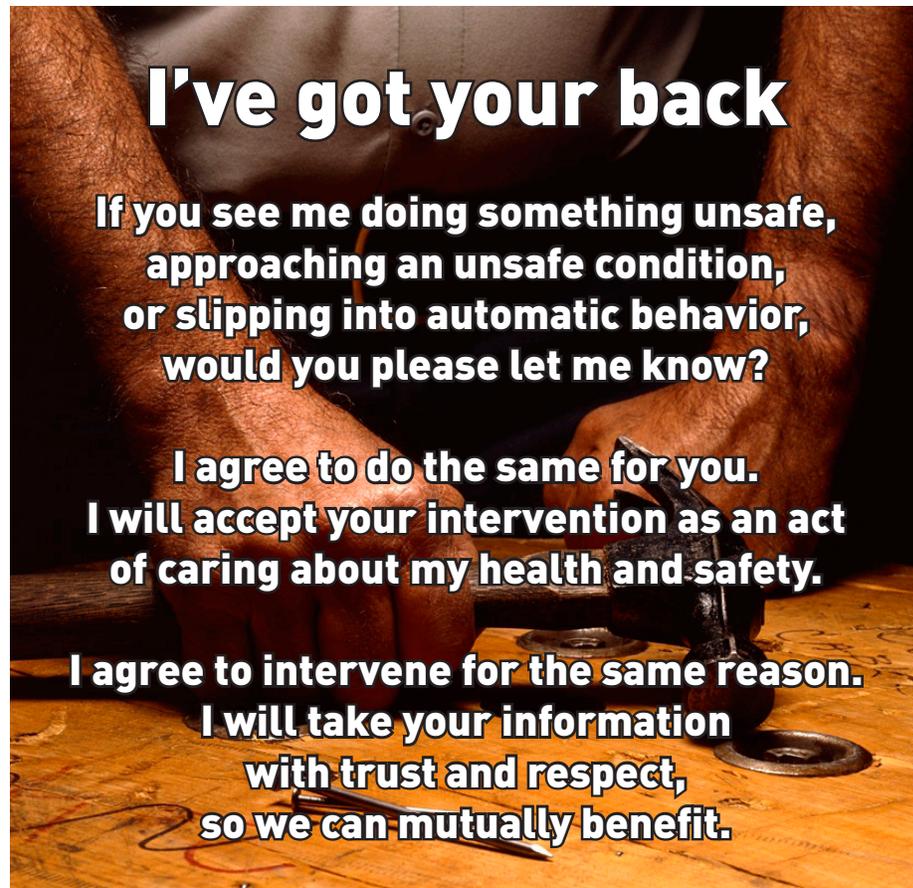
Because the entire facility needs to be inspected at least quarterly, planning should focus on accomplishing this in a timely manner. A good strategy is to conduct inspections at different times of the day, throughout the year, so that different operating conditions and schedules can be observed. In production areas, an effective method is to begin where raw materials arrive and follow the flow through machining, assembly, finishing, and shipping. At each process, identify activities and conditions where an injury is likely. If any items are of a critical nature or present an imminent danger, these critical items should be immediately reported to the person responsible for taking action.

Inspection procedures

Address unsafe work practices

When an unsafe work practice is observed during a hazard inspection, it is important that it be treated as any other hazard. The observed action should be recorded on the inspection form and dealt with through the safety committee. Typically, only the unsafe act and location are recorded. The employee's identity is omitted, but the person responsible for that area is informed of the unsafe work practice so that changes can be made. Changes may include training the group and reinforcing the safe work practice or making a physical change so the unsafe act is less likely.

It may be beneficial to have the responsible supervisor accompany the inspection team so that observed unsafe acts can be addressed immediately. Companies with strong safety cultures may have policies that permit, and even encourage, workers to openly discuss unsafe work practices when they are observed. Formalized programs often referred to as "tough caring" or "I've got your back" empower employees by establishing mutual agreements to look out for one another. Each party promises to accept corrective comments as a show of concern for their safety. This philosophy applies even when the offender is a supervisor.



Inspection procedures

Record hazards on inspection forms

Many companies use their own inspection forms as part of the inspection process. This tends to be superior to using a generic downloaded form. There are certainly hazards common to most operations, but each business also has its own unique hazards. The best forms combine common and job-specific hazards to guide inspection teams.

Inspection checklists are popular for conducting inspections because they provide guidance in what to look for. This is particularly useful when the inspection team members are inexperienced and unfamiliar with the hazards in the workplace. However, a drawback to checklists is that they often get checked off without much other information. Checklists also frequently omit a section for unsafe work practices and are rarely customized for a specific work area.

The example form pictured below is provided full-size in the forms section. It combines common and area-specific hazards, with broad checklist categories as prompts for the inspection team. Ample space is provided to elaborate or explain hazards observed.

Department Inspection Form Maintenance <small>(Area or department name)</small>	
Responsible manager or supervisor: <u>Bob C.</u> Date: <u>4/4/2012</u> Inspection conducted by: <u>Lorraine J.</u>	
Indicate priority of items needing attention. 1 = Low priority 2 = Medium priority 3 = High priority (Circle any IMMINENT DANGER items.)	
CHECK ITEMS NEEDING ATTENTION.	DESCRIBE DEFICIENCIES NOTED AND ACTIONS REQUIRED.
WALKING AND WORK SURFACES <input checked="" type="checkbox"/> Housekeeping <input checked="" type="checkbox"/> Aisles <input type="checkbox"/> Exits <input type="checkbox"/> Work surfaces <input checked="" type="checkbox"/> Stairs and ladders <input type="checkbox"/> Other	(2) Garbage cans overfull/ need to empty (1) Pallets stored in aisle near w. exit (2) Damaged stair tread (2nd from bottom)
MACHINERY <input checked="" type="checkbox"/> Point-of-operation guarding <input type="checkbox"/> Barriers and gates <input type="checkbox"/> Interlocks <input type="checkbox"/> Lockout tagout <input type="checkbox"/> Other	(2) Grinder tool rest gap too wide
ELECTRICAL <input checked="" type="checkbox"/> Panel clearance maintained <input type="checkbox"/> Circuits marked <input type="checkbox"/> Extension cords <input type="checkbox"/> Grounding and GFCI <input checked="" type="checkbox"/> Other	(2) Ladder stored in front of breaker panel / should be moved (3) Space heater has melted insulation on cord with wires showing / need replacement !
CHEMICAL <input type="checkbox"/> MSDSs available and organized <input type="checkbox"/> Container labeling <input type="checkbox"/> Storage and arrangement <input type="checkbox"/> Flammables in approved safety containers and cabinets <input type="checkbox"/> Any spillage or leakage <input checked="" type="checkbox"/> Cylinders secured <input type="checkbox"/> Other	(1) Oxygen cylinder had loose chain on it / I tightened it on the spot.

Indicate priority of items needing attention. 1 = Low priority 2 = Medium priority 3 = High priority (Circle any IMMINENT DANGER items.)	
CHECK ITEMS NEEDING ATTENTION.	DESCRIBE DEFICIENCIES NOTED AND ACTIONS REQUIRED.
ENVIRONMENTAL <input type="checkbox"/> Airborne contaminants <input type="checkbox"/> Ingestion hazards <input type="checkbox"/> Skin contact <input type="checkbox"/> Noise <input type="checkbox"/> Temperatures <input type="checkbox"/> Illumination <input type="checkbox"/> Ventilation <input type="checkbox"/> Personal protective equipment <input type="checkbox"/> Other	Nothing noted !
ERGONOMICS <input checked="" type="checkbox"/> Awkward postures <input type="checkbox"/> Repetitive motion <input type="checkbox"/> Forceful exertions <input type="checkbox"/> Contact pressure <input type="checkbox"/> Work station design <input type="checkbox"/> Other	(2) Awkward stance when servicing trucks. Need a ladder in area.
UNSAFE BEHAVIORS <input type="checkbox"/> Horseplay <input type="checkbox"/> Unsafe lifting <input type="checkbox"/> Improper tool use <input type="checkbox"/> Bypassing safety devices <input checked="" type="checkbox"/> Not using PPE <input type="checkbox"/> Risk taking in general <input type="checkbox"/> Other	(2) Not using ear plugs when operating air wrench x 2. Working in general Other
AREA SPECIFIC HAZARDS <input type="checkbox"/> Oily rag storage <input checked="" type="checkbox"/> Hoses neatly stored <input type="checkbox"/> Goggles when under vehicles <input type="checkbox"/> Pits covered when not in use <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____	AREA SPECIFIC HAZARDS <input type="checkbox"/> Oily rag storage <input checked="" type="checkbox"/> Hoses neatly stored <input type="checkbox"/> Goggles when under vehicles <input type="checkbox"/> Pits covered when not in use <input type="checkbox"/> _____ <input type="checkbox"/> _____ <input type="checkbox"/> _____

Inspection procedures

Send completed forms to committee chair

Once the inspection is complete and the inspection form filled out, it should be given to the safety committee chair or the company's safety coordinator.

Distribute hazard report to responsible parties

When the safety committee chair or safety coordinator receives inspection reports, they should be reviewed and items recorded for future discussion. The forms or other communication device should be used to inform the responsible parties of any hazards needing action. A reasonable amount of time should be determined for a response.

If not addressed on the inspection form itself, the specific items should be prioritized, particularly if there are any critical items needing attention.

Communicate actions taken to safety committee

Responsible parties should communicate back to the safety committee chair or safety coordinator the status of the items noted. If the item has been taken care of, the date of correction should be noted.

Review results at next safety committee meeting

At the very next safety committee meeting, the results of the inspections and the status of items noted should be discussed. Individual inspection forms can be used or, if appropriate, a compiled list of hazards can be reviewed.

It is important that safety committee members be kept informed of hazard status so they can see the results of their efforts.

Hazards corrected

Corrected hazards should be noted in the safety committee minutes and removed from the list for future review.

Hazards not corrected

Hazards that have not been corrected need to remain on the safety committee list until resolved or management finds an alternative way to make sure the hazard will not result in injury.

Sometimes a hazard cannot be completely eliminated, but alternative methods may be employed to make the situation less hazardous or to otherwise safeguard workers. Low priority items need no further action as long as a responsible party agrees to make needed corrections.

Learning from hazards

Take the hazard identification process a step further by forming a learning team. Identify a high priority hazard and form a team of employees who work in that area to find solutions.

Determine priority

New inspection teams sometimes have a tendency to create long laundry lists of trivial items with little or no safety consequence. Keeping the inspection focused on the things that can truly lead to accidents will give the effort more credibility with management. In order for identified hazards to be given due consideration by management and other responsible parties, they must be prioritized.

Probability	Imminent	MEDIUM PRIORITY	HIGH PRIORITY	HIGHEST PRIORITY
	Probable	MEDIUM PRIORITY	MEDIUM PRIORITY	HIGH PRIORITY
	Unlikely	LOW PRIORITY	MEDIUM PRIORITY	MEDIUM PRIORITY
		Minor	Moderate	Serious
		Severity		

In this illustration, the probability of injury and severity of injury are on the X-Y axis. Low-priority items are unlikely to result in an injury and such injuries will tend to be minor. In contrast, high-priority items are likely to result in injuries, with a more severe outcome.

For example, a glass jar of peanut butter sitting near the edge of a shelf could get knocked off and could result in an injury. However, the probability of this occurring is low and the resulting injury, if any, would most likely be a minor cut. Therefore, these conditions would result in a Low Priority being assigned to it.

In another example, a worker repairing a leaking pipe in a 6 foot trench with vertical sides and sandy soil has a high probability that an accident will occur by the sides collapsing. The most likely outcome would be a serious or fatal injury. As such, this would be a high priority item.

When the probability of an injury is “Imminent” and the likely severity is “Serious”, a special condition, known as an “Imminent Danger” is present. Swift action is required because of the urgency of the situation. This should require the temporary suspension of the specific operation until the condition is mitigated.

Controlling hazards

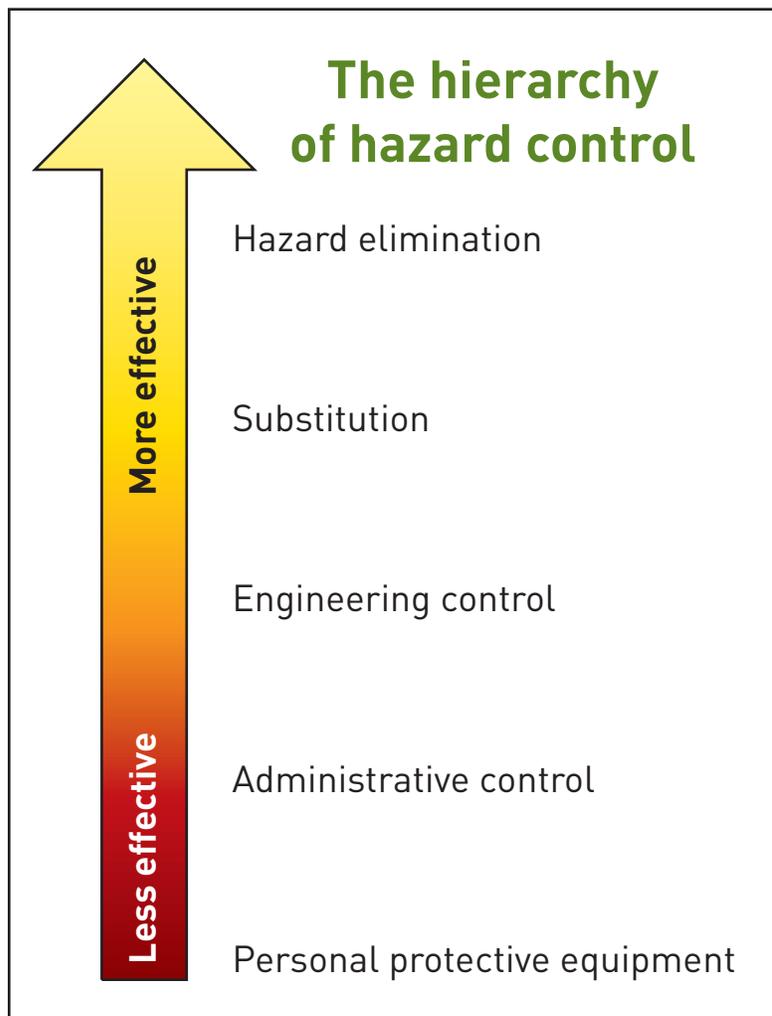
Once hazards have been identified, finding a means to effectively eliminate or control them is crucial. The best hazard identification program can be a huge waste of time if the hazards remain or are ineffectively dealt with. In addition, unresolved hazards can adversely impact the attitudes of the safety committee and the company as a whole.

Hazard elimination

The best way to deal with a hazard is to eliminate it. This can be done by discontinuing a process, automating a process, or providing a tool or device that removes the employee from the hazard zone.

Substitution

If you can't completely eliminate a hazard, make a change that substitutes one hazard for one that is less harmful. The hazard still remains, but it is now less hazardous.



Engineering control

Providing an engineering control isolates, ventilates, contains, or otherwise controls the hazard through some physical means. Placing a guard on a hazardous moving part is an example. The hazard remains, but the workers are protected from the point of operation. The reason this is less effective than hazard elimination or hazard control is because it is possible to remove an engineering control or shut off the means of control, thus exposing employees.

Administrative controls

Administrative controls are best used in combination with a more effective means of control. Administrative controls include procedures and training to avoid or reduce exposure to the hazard.

Personal protective equipment (PPE)

PPE provides a barrier between the worker and the hazard. It never eliminates the hazard, but will provide a degree of protection should the worker come in contact with the hazard, whether it be physical or chemical in nature.

Controlling hazards

Hazard control examples

 <p>More effective</p> <p>Less effective</p>	Hazard elimination	Replace the machine with a quieter one that does the same thing.	<p>Example: Noisy processing machine</p>
	Substitution	Adjust the machine or install a muffling device to reduce noise level.	
	Engineering control	Install a sound-reduction curtain around the machine.	
	Administration control	Limit amount of time near machine.	
	Personal protective equipment	Wear earplugs while in vicinity.	

 <p>More effective</p> <p>Less effective</p>	Hazard elimination	Use a non hazardous replacement or eliminate need to clean parts.	<p>Example: Caustic chemical for parts cleaning</p>
	Substitution	Substitute a less hazardous chemical for the caustic one.	
	Engineering control	Enclose process in a glove hood.	
	Administration control	Use personal protective equipment and implement job rotation schedule.	
	Personal protective equipment	Wear protective gloves and face shield while handling parts.	

 <p>More effective</p> <p>Less effective</p>	Hazard elimination	Install a mechanized system for product selection and transport.	<p>Example: Frequent and heavy lifting</p>
	Substitution	Order materials in smaller sizes and lift larger items with devices.	
	Engineering control	Provide hand trucks and hoists to handle heavier items.	
	Administration control	Establish safe lifting limits and procedures. Conduct training.	
	Personal protective equipment	Wear protective gloves and slip-resistant footwear.	

Recognizing hazards

The best tools for identifying hazards are experience and knowledge of your industry. In addition, understanding your company's prior accident history can give you a great perspective for what can and has gone wrong. Your accident history should be reviewed and analyzed by the safety committee regularly.

Other excellent sources for identifying hazards in your workplace include:

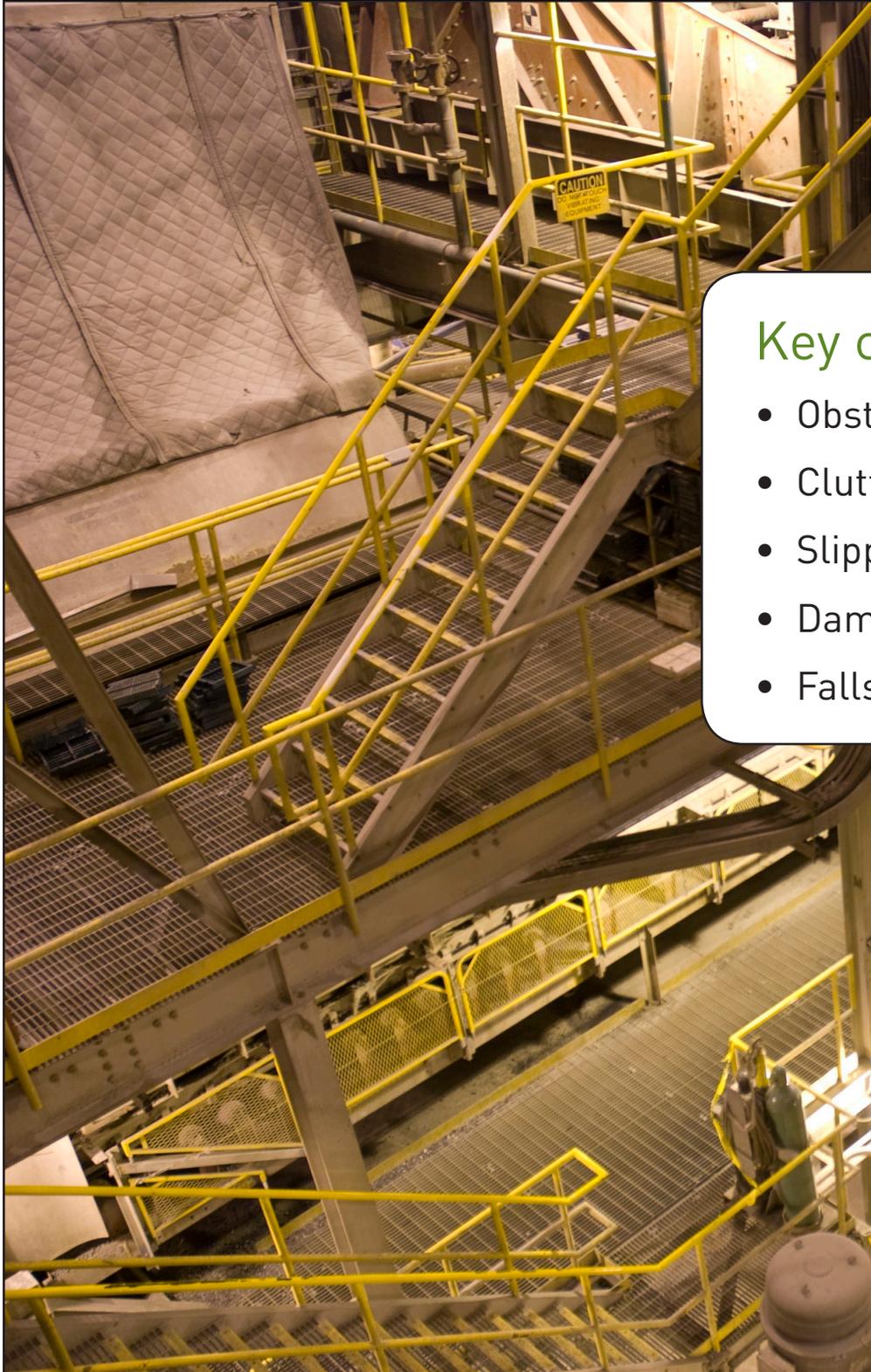
- Oregon OSHA www.orosha.org for links to rules, publications and topical resources. A number of specialized inspection checklists are available.
- SAIF Corporation www.saif.com for links to various safety topics. Also, a safety consultant can provide guidance and assist you in hazard identification at your location.
- Local fire department.
- Industry associations and publications.

The remainder of this guide provides numerous examples of hazards typical in many work environments. These provide visual cues and written descriptions of the types of things to observe for while conducting inspections. For the sake of order and brevity, the hazards have been organized into seven categories.

- Work surface and walkway hazards
- Machinery hazards
- Electrical hazards
- Chemical hazards
- Environmental hazards
- Ergonomic hazards
- Unsafe work practices

Although this guide should provide hazard inspection teams a fairly comprehensive list of hazards typical in the workplace, it does not attempt to address each and every hazard which might be anticipated. These hazards however, are common in most workplaces.

Work surface and walkway hazards



Key concerns

- Obstructions
- Clutter
- Slippery surfaces
- Damage
- Falls from elevations

Work surface and walkway hazards

Obstructions and clutter

Floors may be cluttered with furniture, electrical cords, and materials that pose a trip hazard.



How is the overall housekeeping? A disorganized or dirty area may be reflective of an underlying poor safety attitude. Inspecting authorities tend to be more thorough when the first impression is one of poor housekeeping.

Inadequate housekeeping practices produce fire and trip hazards. Frequent and regularly scheduled cleanups should be part of the company's safety culture.

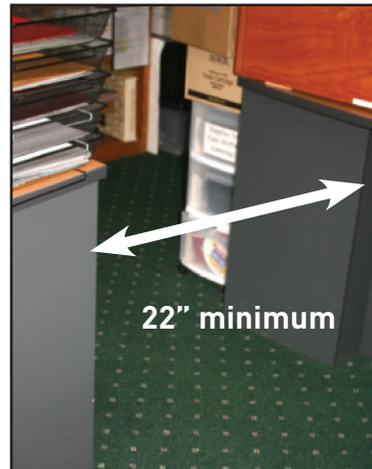
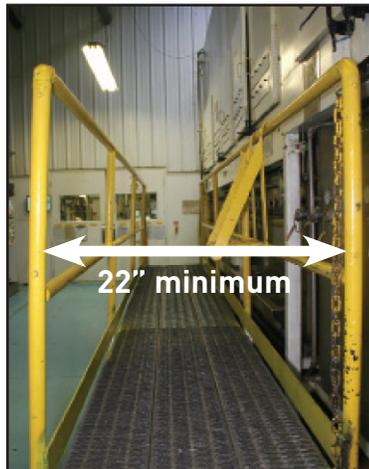


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Emergency exits should always be free of obstructions and kept unlocked during business hours.

Aisles, whether at ground level or on a catwalk, need to be wide enough to safely traverse. OSHA has established that aisles need to be maintained at least 22 inches wide. Aisles leading to exits may need to be wider.

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OAR 437-02-0022(4)(a)

Work surface and walkway hazards

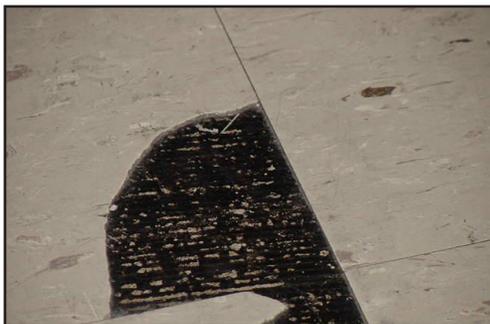
Slippery surfaces

Walking surfaces can be very hazardous if they are slippery. Floors become “skating rinks” when liquid spills are not swiftly cleaned up. Outside walkways and parking lots are hazardous when rain, snow or ice is present. Walk-in coolers and freezers present special hazards because ice can form on the floor.



Damaged surfaces

Broken flooring, damaged steps, potholes and other damaged surfaces can result in trips and falls, as well as twisted ankles and even fractures. In addition, be watchful for damaged ladders and the condition of stairs.

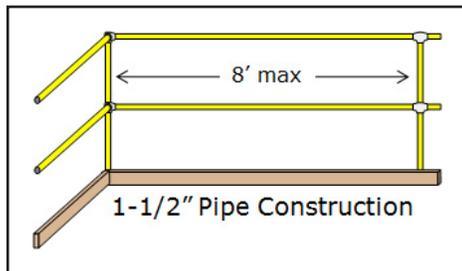
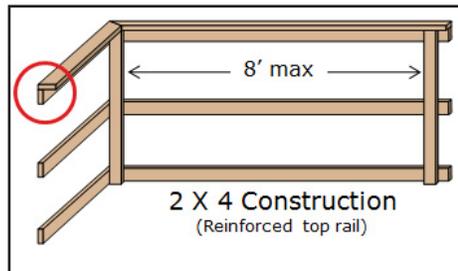
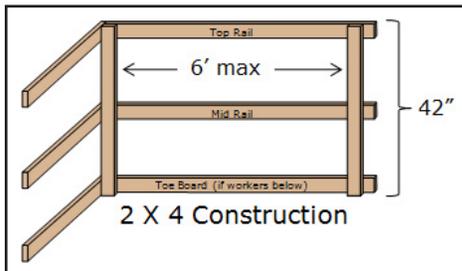


Work surface and walkway hazards

Elevations

Standard railings are required for any open-sided floor or platform that is four or more feet above the adjacent floor surface; or any open-sided floor or platform when it is above an adjacent hazard.

29 CFR 1910.29(b)



OAR 437-002-0026

When placing a ladder, make sure that its base is one foot out for every four feet in height.

The ladder rails should also extend at least three feet above the edge of the roof.

If the ladder is to be used throughout a work shift, it should also be secured in place.

Oregon OSHA changed the rule for fall protection on fixed ladders. Consult this fact sheet for a rundown on specific requirements and dates.

<https://osha.oregon.gov/OSHAPubs/factsheets/fs74.pdf>



Machinery hazards



Key concerns

- Guarding for:
 - Point of operation
 - In-running nip points
 - Rotating motion
 - Flying chips and sparks
- Lockout/tagout

Machinery hazards

General requirement for machine guarding

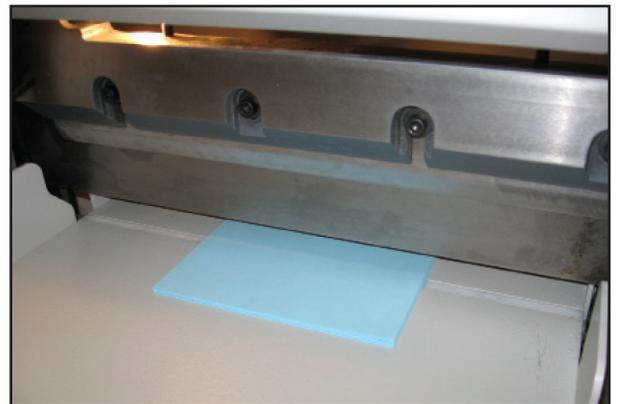
CFR 1910.212(a)(1)

One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by:

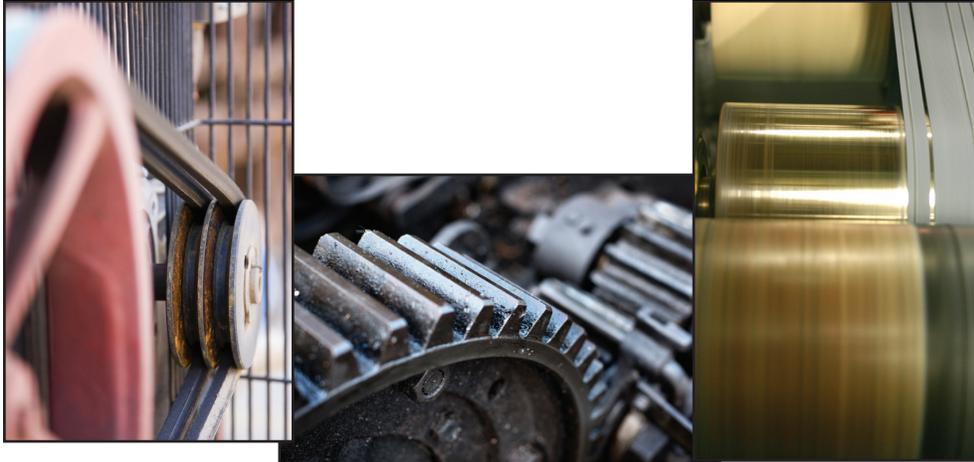
- Point of operation
- In-going nip points
- Rotating parts
- Flying chips
- Sparks

Point of operation

This is the point at which cutting, shaping, or forming is accomplished.



Machinery hazards



In-running nip points

This hazard occurs when rotating parts on machinery come close together or are intermeshed.



Rotating motion

Rotating motion takes the form of shafts, shaft ends, collars, couplings, flywheels and spindles, whether fast or slow.



Flying chips and sparks

Flying chips and sparks are generated from material shaping (for example, drilling, milling, and grinding) and welding processes.

Machinery hazards

If you can reach it or it can reach you,



you need to safeguard it.

Safeguarding methods

Guards

- Fixed
- Interlocked
- Adjustable
- Self-adjusting

Devices

- Presence sensing
- Pullback
- Restraint
- Safety controls (tripwire cable, two-hand control, etc.)
- Gates

Location and distance

Feeding and ejection methods

- Automatic or semi-automatic feed and ejection
- Robots

Miscellaneous Aids

- Awareness barriers
- Protective shields
- Hand-feeding tools
- Sawstop®

Machinery hazards

Guards

Mechanical guards provide a physical barrier to prevent contact with the point of operation.

In general, adjustable and fixed guards should be positioned just above the material being processed, so that a finger cannot pass between the material and point of operation.

Adjustable guards need to be continually monitored to ensure hand and finger protection because material sizes can vary, thus increasing the gap between guard and material.



Fixed guards



Adjustable guard



Self-adjusting guard



Barrier



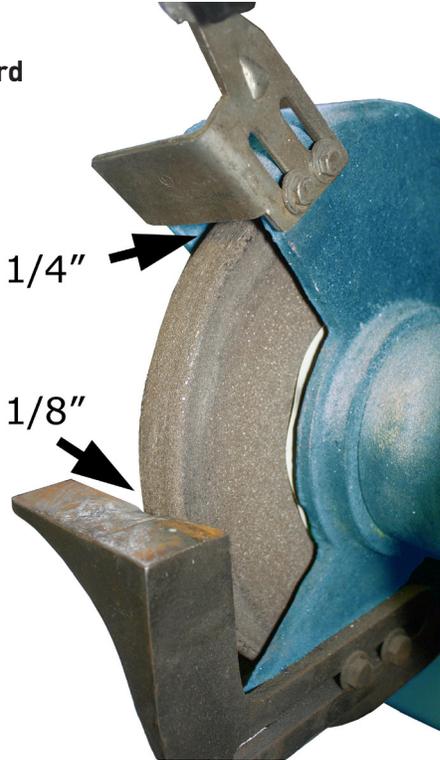
Interlock device

Interlocked guards are usually installed on moveable barriers that, when opened, will shut down power to the machine being protected.

Machinery hazards

CFR 1910.215(b)(9) Tongue guard

CFR 1910.215(a)(4) Tool rest



Bench grinders

One of the more common machine hazards cited by OSHA is the adjustment of a bench grinder's tool rest and tongue guard. The gap between each of these and the grinding wheel should never exceed 1/8" and 1/4" respectively.

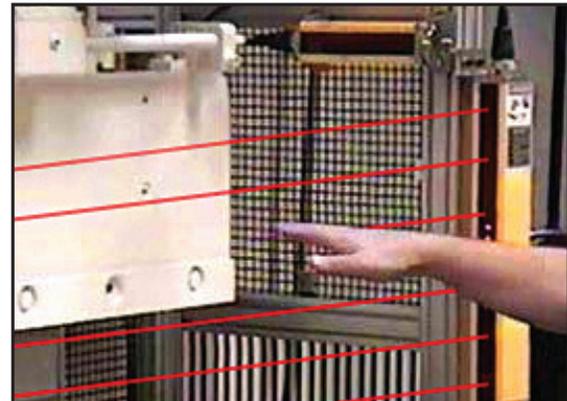
Guarding devices

Guarding devices do not provide a physical barrier, but protect the worker through other methods.

Two-hand controls require the worker to depress two buttons simultaneously to engage the machine. This is effective as long as the devices remain in good repair and a worker does not bypass the safety feature.



Two-hand control



Presence sensing device

Machinery hazards

Presence sensing devices use an infrared beam to shut the machine off whenever something blocks the light. Another type of presence sensing device is a pressure-sensitive mat placed on the floor in a danger area. Pullback devices are an older technology that physically pull the hands out of the way when the machine engages.



Interlocked gate



Pullback device

Other guarding methods

Numerous other guarding methods have been developed to prevent or reduce the possibility of injury when working around points of operation.

Points of operation more than seven feet above the floor are considered safe and do not need to be guarded.

Keeping a point of operation behind a closed and locked door enclosure effectively prevents most people from accessing it.



SawStop® is a specially designed table saw with a built-in safety device that detects when a finger or other body part makes contact with the blade. Within milliseconds, the blade drops below the table surface and imbeds in a braking material, completely stopping the blade. This greatly reduces or eliminates an injury from the saw blade.



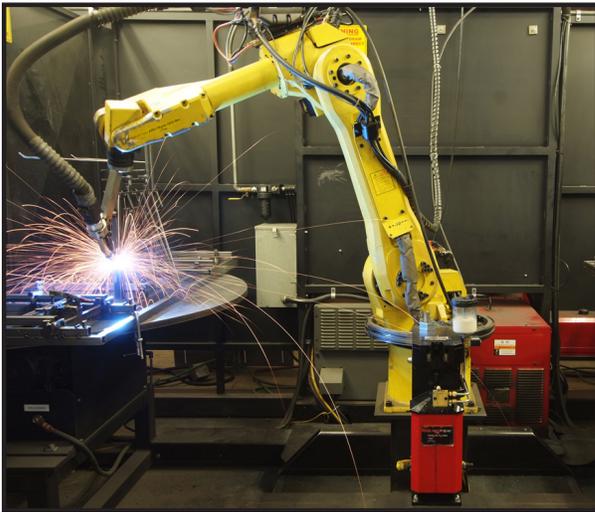
Height

> 7 feet

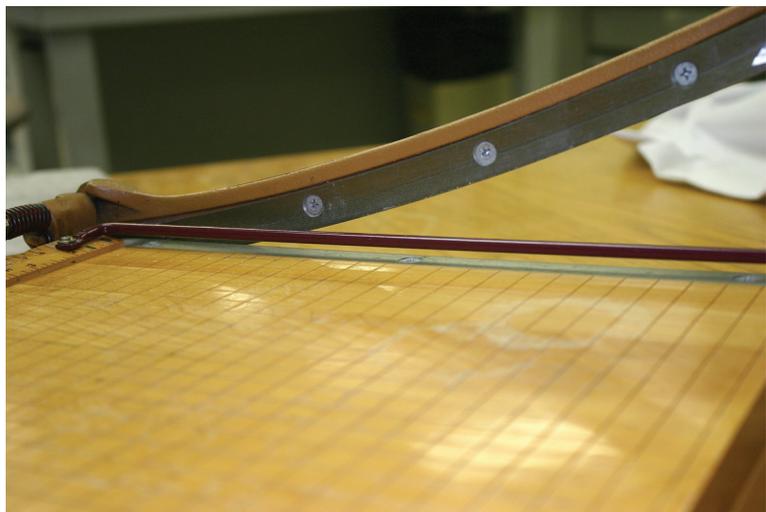
Machinery hazards

Awareness barriers work like the warning track on a baseball field. They don't really prevent injury, but let you know when you are close.

Robotics or other automation methods are effective at preventing workers from being exposed to points of operation. However, any task using robotics needs to be carefully evaluated to ensure barriers or other devices protect workers against robot swing and movements.

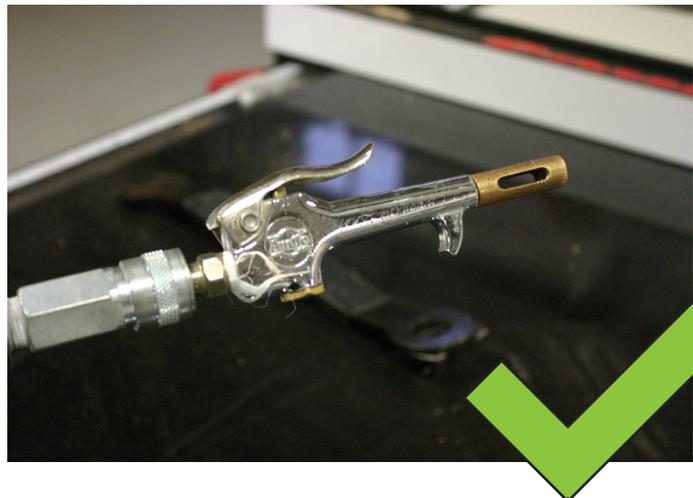


Robotics



Awareness barrier

CFR 1910.242(b) When pressurized air greater than 30 psi is used for cleaning purposes, the nozzle needs a pressure relief device that limits pressure to 30 psi if the flow is dead-ended.



Determining the adequacy of fixed guards

When a guard has been installed to protect workers from the point of operation, the most important consideration is whether or not a worker can reach the point of operation, and consequently be injured.

OSHA has published guidelines for allowable guard opening sizes. This is based upon distance from the point of operation. The further from the point of operation, the larger the opening can be.

CFR 1910.217(c)(2)(i)

Point of operation

Guard opening requirements

Distance of opening from point of operation	Maximum width of opening
1/2" to 1 1/2"	1/4"
1 1/2" to 2 1/2"	3/8"
2 1/2" to 3 1/2"	1/2"
3 1/2" to 5 1/2"	5/8"
5 1/2" to 6 1/2"	3/4"
6 1/2" to 7 1/2"	7/8"
7 1/2" to 12 1/2"	1 1/4"
12 1/2" to 15 1/2"	1 1/2"
15 1/2" to 17 1/2"	1 7/8"
17 1/2" to 31 1/2"	2 1/8"
Over 31 1/2"	6"

As an example, if a guard is 7 inches from the point of operation, the maximum allowable guard opening is 7/8" wide.

A guard opening gauge can be purchased or made to help assess the safety of a guard's openings. It is commonly referred to as a "gotcha stick," and its stair step design allows you to determine if a guard's gaps are too wide. As long as the tip cannot touch the point of operation, the guard's openings are narrow enough.

A template to assist you in making your own guard opening gauge can be found at the end of this guide. The photo to the right illustrates the use of such a device.



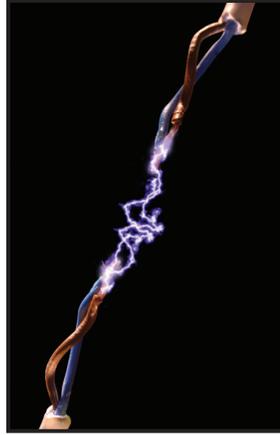
Machinery hazards

Lockout/tagout

When conducting a hazard assessment, it is important to be on the lookout for repair tasks where workers may be exposed to various energy sources.



If someone is performing maintenance or repairs



and a form of energy is present or stored



it must be isolated or dissipated.

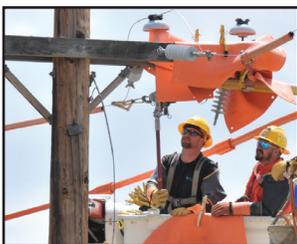
Energy sources

Electricity is the most common energy source associated with locking out a piece of equipment. Workers need to be protected against the accidental energizing of a circuit when repairs are being made.

Stored hydraulic, pneumatic, and steam pressure can also pose significant risks. Generally, such sources need to be dissipated or blocked off so moving parts are not activated.

Suspended items (gravity) need to be blocked up while doing work.

Spring tension needs to be blocked or released, and piped chemicals need to be blocked off or drained.



Electricity



Piped chemicals



Spring tension



Steam pressure



Pneumatic pressure



Gravity



Hydraulic pressure

Electrical hazards



Key concerns

- Clear access to electric panels
- Labeling of electric circuits
- Condition and use of extension cords
- Grounding of cords and devices

Electrical hazards

Blocked electrical panels

Electrical panels need to have direct access and at least 36 inches of clear space in front of them.



Electrical panel labeling

Each circuit needs to be clearly labeled. In an emergency, the quick location of specific circuits is essential.

Any open slots need to be covered with “blanks” to prevent inadvertent contact with electricity.



Electrical hazards

Power cords

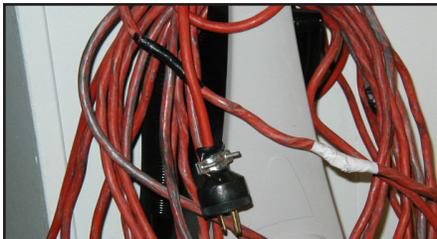
Extension cords can be found in almost every work environment. Damaged cords can be dangerous as they can cause fires and serious injury.

Extension cords should be used for temporary tasks then put away afterwards. They should never be used in place of permanently wired electrical cable, nor should they be run where they are subject to damage. An additional outlet should be installed if an extension cord is being used on an ongoing basis.

Grounding prongs are sometimes broken off, accidentally or on purpose. This removes an important safety feature and can result in electrocution.

Power strips are sometimes “daisy chained” together. This increases the load on power strips and the circuit, which overheat the circuit, resulting in fire and/or injury.

Make sure electrical cords are neatly arranged and do not pose a trip hazard. Use a cord cover when a trip hazard is present.



Cords should be free of damage and splices



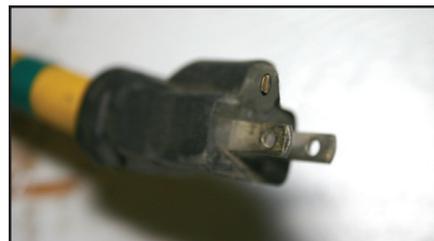
Never used for permanent power source



Cord worked loose from plug



Power strip daisychain



Grounding prong missing



Trip hazard



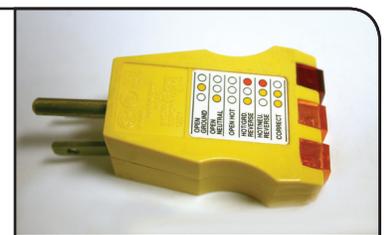
Not fully plugged into receptacle



Cord cover

Testing

An inexpensive and simple electrical circuit tester can be used to test cords and circuits. It can test for the presence of a ground, reversed polarity, short circuits, and other conditions. Some have trip buttons to test ground fault circuit interrupters (GFCIs).



Chemical hazards



Key concerns

- Material safety data sheets
- Container labeling
- Storage of chemicals

Chemical hazards

29 CFR 1910-1200 Hazard communication and GHS

The Hazard Communication Standard has adopted the Globally Harmonized System (GHS) for container labeling and Safety Data Sheets (SDS). Employers are required to train employees regarding the new labeling and safety data sheet formats by December 1, 2013.

Container Labeling

Containers of hazardous chemicals are required to be labeled as to their contents and hazardous properties. Secondary containers also need to be labeled if the material will remain in the container beyond one shift.

Labels are required to contain the product identifier, signal word, hazard statement(s), pictogram(s), and precautionary statement(s).

Sample label

- 1. Product identifier:** Name and code of the product.
- 2. Supplier identification:** Name and contact information of the supplier.
- 3. Precautionary statement:** Provides information about how to prevent exposure to a chemical, how to respond to exposure, and how to store the chemical properly.
- 4. Pictogram:** A symbol that is intended to quickly convey specific information about the hazards of a chemical. It is a black symbol on a white background within a red diamond.
- 5. Signal word:** Indicates the severity of the hazard.
WARNING used for less severe hazards
DANGER used for severe hazards
- 6. Hazard statement:** Describes the nature of the hazard.
- 7. Supplemental information:** Contains extra information like direction for use and size of the container.

1. Product identifier CODE _____ Product Name _____	4. Pictograms 
2. Supplier identification Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	5. Signal word DANGER
3. Precautionary statement Keep container tightly closed. Store in a cool, well-ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified. In Case of Fire: use dry chemical [BC] or Carbon Dioxide [CO2] fire extinguisher to extinguish. First Aid If exposed call Poison Center. If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.	6. Hazard statement Highly flammable liquid and vapor. May cause liver and kidney damage.
	7. Supplemental information Directions for Use _____ _____ Fill weight: _____ Lot Number: _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____



Acute toxicity



Health hazard (acute)



Health hazard (chronic)



Corrosive



Flammable



Explosive



Gases

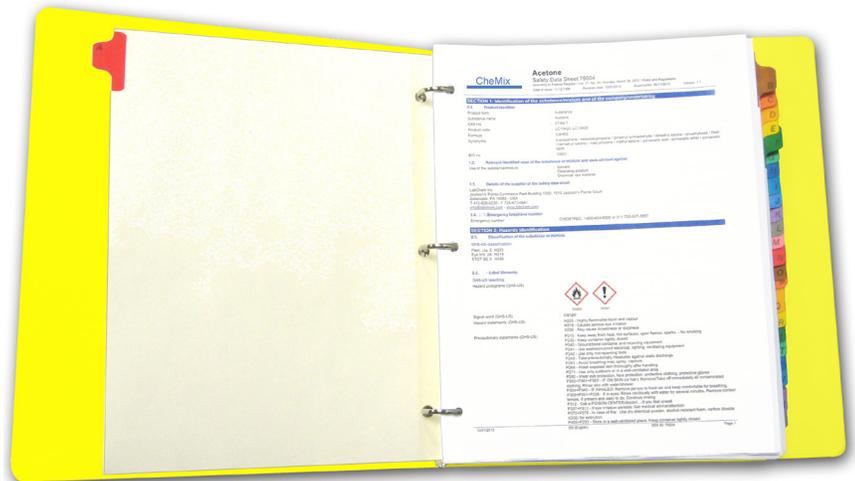


Oxidizer



Environmental

Chemical hazards



Safety data sheets (SDS)

Safety Data Sheets (SDS) replace Material Safety Data Sheets (MSDS). The Hazard Communication Standard establishes that SDSs be available to employees for all hazardous substances in the workplace.

Safety data sheets provide detailed information about a chemical's hazardous properties, handling methods, PPE required, storage methods, and disposal.

The safety data sheets should be organized so that information on specific materials can be easily and quickly located. These are typically kept in a binder or may be kept electronically, so long as all employees can have immediate access to the sheets.

If kept in a binder, it is desirable to have one master SDS book in a central location and smaller books in areas containing the SDSs pertaining to those areas.

Safety data sheets sections

The new sheets will contain a 16-section standardized format.

1: Identification	6: Accidental release measures	11: Toxicological information
2: Hazard(s) identification	7: Handling and storage	12: Ecological information*
3: Composition/information on ingredients	8: Exposure controls/personal protection	13: Disposal considerations*
4: First-aid measures	9: Physical and chemical properties	14: Transport information*
5: Fire-fighting measures	10: Stability and reactivity	15: Regulatory information*
		16: Other information

*Note: Since other agencies regulate this information, OSHA will not be enforcing Sections 12 through 15. (29 CFR 1910.1200(g)(2))

Chemical hazards

Storage of chemicals

Chemicals should be stored neatly at all times. Steps should be taken to make sure the materials do not leak. This is typically accomplished by providing chemical-resistant trays or containment pallets.

Make sure incompatible materials are not stored together. For example, oxidizers (OXY) should not be stored with combustible materials, since oxygen is released with heat and can greatly increase a fire's intensity. In a confined area, an explosion can occur.



Excellent storage methods

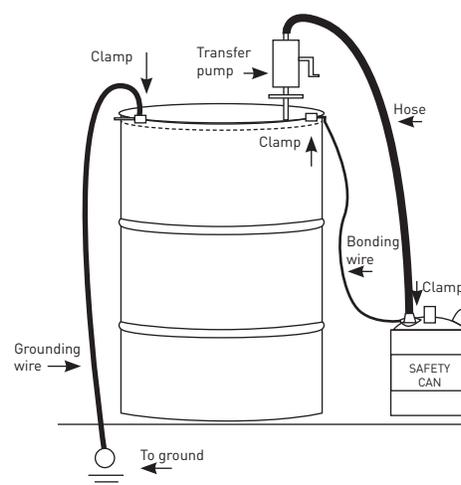


Poor storage methods

CFR 1910.106(e)(6) Drum storage

When dispensing flammable liquids, the fluid motion can cause a static charge to build up. A spark can then ignite flammable vapors in the area.

Therefore, drums containing flammable liquids need to be electrically grounded to prevent the buildup of static electricity. Also, cable and clips should be used to bond the drum with a secondary container during dispensing.



CFR 1910.106(d)(3) Flammable liquid storage

Flammable liquids stored in an area should be kept in an approved cabinet any time the total quantity exceeds 25 gallons.

Approved cabinets may contain up to 60 gallons of class I flammables and/or class II combustibles, or up to 120 gallons of class III combustibles.

Class I flammable: Flashpoint below 100 degrees F

Class II combustibles: Flashpoint at or above 100 degrees F, but below 140 degrees F

Class III combustibles: Flashpoint above 140 degrees F

A maximum of three approved cabinets may be kept in an area.



Gas cylinder storage

OAR 437-002-0293

Because gas cylinders are under extremely high pressure, damage to their valve can cause them to be propelled, like a rocket, causing serious property damage and injury.

Consequently, gas cylinders need to be secured against falling and damage.

Securely strapping or chaining them to a structural member is an effective way to protect them from falling over. Caging them is even better. Protective caps need to be in place when the cylinders are not in use.



Unsafe



Better

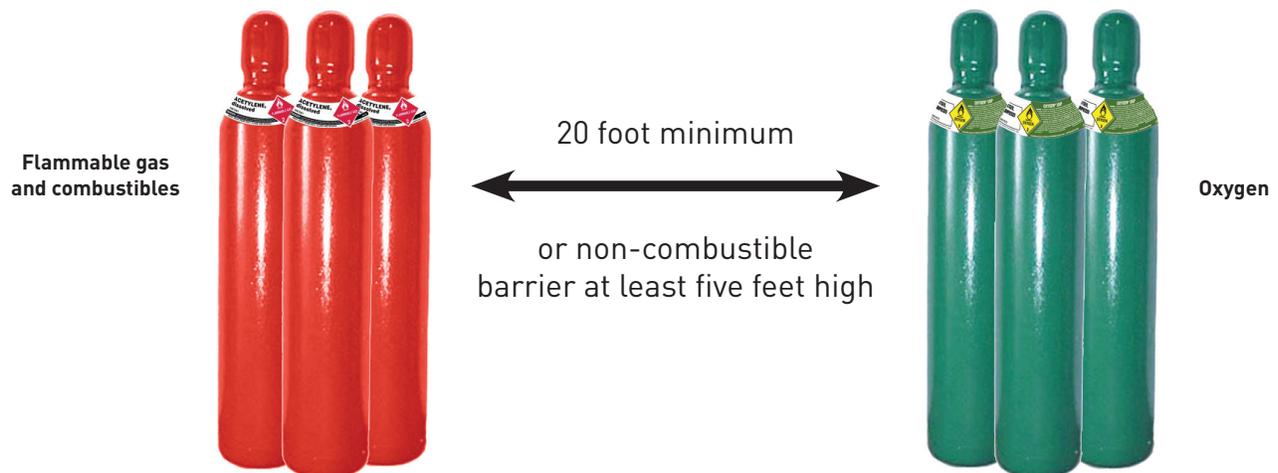


Even better

Cylinder separation

CFR 1910.253(b)(4)(iii)

Flammable gasses cannot be stored with or near oxygen cylinders. They must be separated by at least 20 feet or stored on opposite sides of a non-combustible barrier at least five feet tall.



Environmental hazards



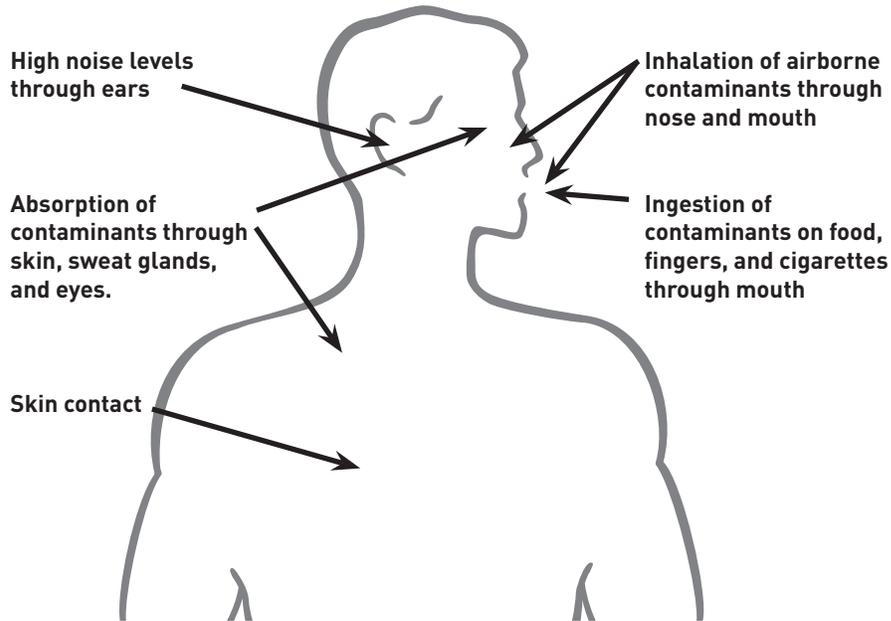
Key concerns

- Routes of exposure
- Types of contaminants
- Noise and other contaminants
- Environmental controls

Environmental hazards

Routes of exposure

Routes of exposure are the ways a hazardous substance may enter the body.



Airborne contaminants

Vapors

Vapors form above a liquid as a result of evaporation. The term “vapor” comes from evaporation.

These are typically present above open containers with flammables or heated liquids (such as dipping processes).

Liquid spills also form vapors, and they are present when wiping down surfaces with a chemical.

Fumes

Fumes are produced when metals are heated. This is most common during welding and cutting, soldering, and heat treating.

The nature of welding is such that workers often have to get in close to see what they are doing. Consequently, the welding plume is often right in their breathing zone. Effective local exhaust ventilation is important.



Environmental hazards

Gases

Gases are typically stored in pressurized cylinders such as welding gasses (acetylene, O₂), liquid nitrogen, carbon dioxide, and chlorine gas.



Mists

Mists are produced when a liquid, under pressure, is atomized.

Common mist-producing activities include spray finishing, pesticide application, and airbrush work.

Also, a hydraulic line can produce a mist if the line is ruptured.



Smoke

Smoke is produced when "ordinary" combustibles are burned.

Common sources include cigars and cigarettes, structural fires, incinerators, and burn piles.



Dust

Dust is created whenever dried particulates are disturbed. Most of the time, dust is an irritant rather than a health hazard.

Common dust-producing activities include sweeping, blowing down surfaces, construction, and various manufacturing processes.



Environmental hazards

Ingestion

Contaminants can be ingested intentionally, but in an occupational setting, this most commonly is done unknowingly.

Transfer of contaminants to food can occur if they are kept in proximity to each other. Food should not be opened, exposed, or consumed in contaminated areas.

Not washing hands thoroughly can result in contamination from handling food or placing fingers in the mouth.

Smoking can also permit contaminants to be ingested or breathed.



Absorption

Contaminants can also be absorbed through the eyes, sweat glands, skin, and hair.

Wearing the correct personal protective equipment is essential to prevent this kind of contaminant exposure.



Eyes



Sweat glands



Skin



Hair

Environmental hazards

Skin contact

Caustic chemicals and acids can seriously damage the skin if a spill occurs. Properly selected gloves and safe chemical-handling procedures are essential to prevent such injuries.

In general, the longer the skin contact, the worse the damage. Sometimes a minor spill on clothing or inside a glove can be very serious, as it can remain in contact with the skin for an extended period of time.

OAR 437-002-0161(5)



Eyewash stations and/or showers are necessary when caustic chemicals are in use and should be located less than ten seconds walking distance from the anticipated hazard. Eye wash stations should be capable of a water flow of at least .4 GPM for 15 minutes. Safety showers should be capable of 20 GPM for 15 minutes. Both should be kept clean and tested weekly.



Noise

Whenever high noise levels are encountered, hearing protection should be worn.

If the average noise level for an eight hour shift is at or above 85 decibels, a full hearing conservation program is required.

Examples

Quiet country stroll	30 dB
Library	40 dB
Typical office	60 dB
Vacuum cleaner running	70 dB
Typical factory	80 dB
Milling machine	85 dB
Motorcycle at 25 ft	90 dB
Power mower	95 dB
Helicopter taking off	100 dB
Steel mill, auto horn	110 dB
Thunderclap, chain saw	120 dB
Military jet taking off	130 dB



70 dB



90 dB



103 dB



110 dB

Environmental hazards

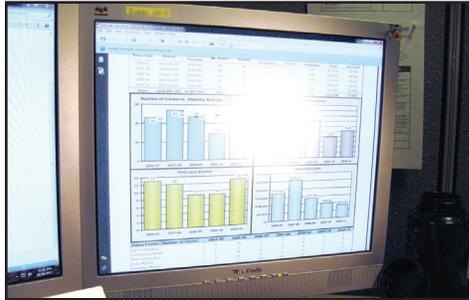
Other environmental hazards

A number of other environmental hazards may present themselves, depending on the kind of activities your business engages in.

Some examples:



Hot or cold environments



Glare



Radioactive energy

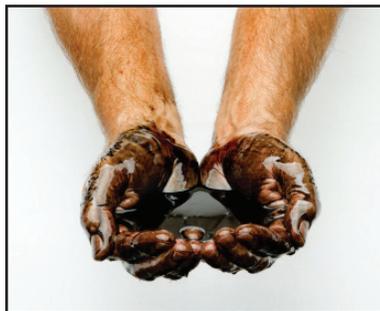


Biological materials

Environmental controls

Substitution

Substitution is an excellent way to reduce or eliminate an environmental hazard. When you use a less hazardous substance to perform a given task, the task becomes inherently safer.



Environmental hazards

Ventilation

Airborne contaminants should be kept away from the work area as much as possible. When a contaminant is present, it needs to be diluted or, better yet, removed from the breathing zone.

Ventilation can be as simple as opening a door or window in order to allow a fresh air exchange. Specific hazards require more controlled ventilation such as local exhaust, where a hood or exhaust duct will draw away airborne contaminants. Sometimes, ventilation may take the form of a spray finishing booth or room.



Local exhaust ventilation



General ventilation

Personal protective equipment

Personal protective equipment (PPE) can be an effective means of protective workers against hazards, especially when used in conjunction with other control measures such as hazard reduction or engineering controls. Its effectiveness is greatly impacted by inconsistent use of and poor maintenance of PPE.

CFR 1910.132(d), also known as the PPE standard, requires that a hazard assessment be conducted to determine which tasks require the use of PPE. This assessment needs to document the type and usage of PPE to be worn.

Affected employees are to receive training in the care and use of the required PPE and employers are required to enforce its use.

CFR 1910.132(d)



Ergonomic hazards



Key concerns

- Soft tissue injuries (acute and cumulative)
- Force
- Frequency
- Posture

Ergonomic hazards



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Soft tissue injuries

Muscles are used to perform work. The more frequently a particular set of muscles is used, the more fatigue results. When you rest, these muscles are restored.

Similarly, a container with water dripping in the top will soon overflow unless a valve is opened to drain off the water. However if the water flows too swiftly or the valve is not opened enough, the container can soon overflow.

Your body, in a similar fashion, needs rest following work. If the task is too forceful, repetitive, involves poor postures or goes too long without a break, fatigue can turn into a soft tissue injury.

Soft tissue injuries typically take the form of sprains and strains. They are injuries resulting from acute overexertion, inflammation or long term repetitive motions. Soft tissues include joints, muscles, ligaments, and tendons.

Examples of acute sprains and strains include:

- Back strain from lifting
- Twisted ankle or knee
- Jammed finger/thumb
- Any overexertion injury from a single event

Examples of repetitive conditions, otherwise known as cumulative trauma, include:

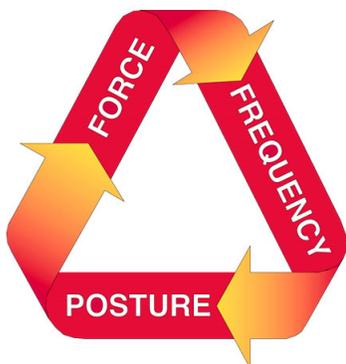
- Carpal tunnel syndrome
- Bursitis
- Tendonitis
- Tenosynovitis
- Trigger finger
- Any inflammation from repetitive motion

Risk Factors

The elements of force, frequency, and posture each play a role in the cause and prevention of soft tissue injuries.

Be aware of these specific aspects of tasks in your inspection areas in order to spot situations where an employee may be in danger of developing a disabling condition.

Typically, this begins as discomfort, then develops into pain, and then finally becomes an injury.



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Ergonomic hazards

Force

Forces include the weight of an object being lifted, the amount of exertion to push or pull an object, and contact pressure against a hand or other body part when exerting a force.

In seeking solutions, try to limit loads to 35 pounds. This can sometimes be done by ordering supplies in smaller sizes. When this cannot be done, team lifting is a good solution. However, the best solution is using a mechanical handling aid.

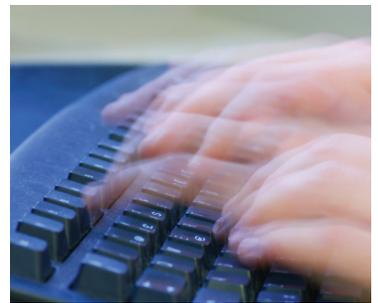
An alternative solution to a heavy lifting situation is to change the process so the load is too heavy to lift manually, and then use mechanical lifting equipment to do the job.



Frequency

Fatigue or injury may result when excessive joint or muscle flexion occurs without rest, regardless of forces applied.

To reduce frequency, consider cross training employees so that they can do various tasks. By varying the muscle groups used, the forces are spread out, which reduces fatigue. Scheduled job rotations throughout the day are a more formal means of reducing the effects of repetitive motion.



Any time you can automate a task, you will greatly reduce the potential for repetitive motion injuries. This can also save labor and other costs.

Posture

When work is done in an awkward posture, the forces exerted are often greater on muscles and joints being used. Consequently, injuries are more likely. A simple example is lifting an object near your body with your elbows in close to your sides. Compare that with lifting the object with your arms away from your body. With the arms extended, the force required to lift is increased and is transferred to your lower back.

Whenever possible, work should be done with neutral postures to reduce the possibility of soft tissue injuries.

Neutral postures include:

- Work performed close to the body
- Back in a natural s-curve (not stooping over)
- Head facing forward and level
- Shoulders relaxed
- Wrists straight and thumbs higher than little fingers



Ergonomic hazards

Common ergonomic hazards

Here are some common situations where injuries from force, frequency and posture are likely.



Bending over at the waist



Bent wrists



Elbows out and away from the body

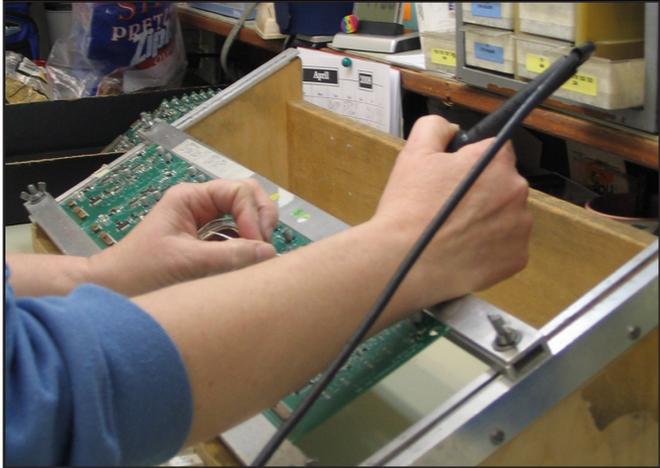


Upper body twisting

Ergonomic hazards



Over reaching with upper body extended



Over reaching with arms suspended



Contact pressure on arm and thighs



Contact pressure on hand



Pinch grip



Pinch grip

Ergonomic hazards

Ergonomic solutions

Here are several examples of common ways to reduce or eliminate ergonomic hazards.

Install spring-loaded bottoms in bins or carts. This will allow the contents height to be raised as items are removed. This reduces the amount of bending over needed to reach items in the bottom.



Angle the work so that it can be handled at a more comfortable height and to reduce awkward postures.



Use load-leveling devices beneath pallets so that materials can be handled in the knee-to-shoulder zone. If the device is equipped with a turntable, use this feature to reduce the need to walk around the pallet. Never reach over the pallet to stack or unstack.



Ergonomic hazards



Retract keyboard legs

Retract keyboard legs as they tend to cause you to bend your wrists upward. Keyboarding with a bent wrist can lead to a soft tissue injury due to repetitive motion.



Position the keyboard so that your wrists remain straight

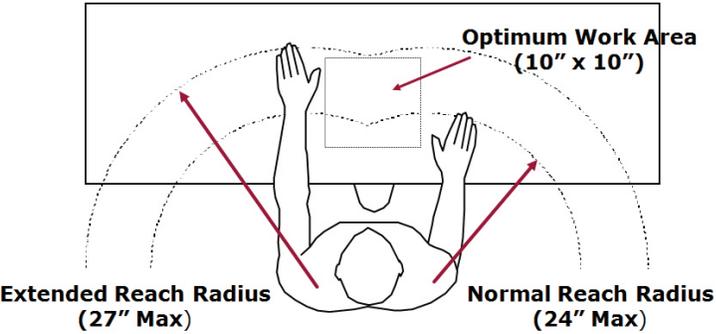
Adjust the keyboard and chair height so that your wrists remain straight when your fingers are on home row.



Suspend the tool



To avoid overreaching, store heavier and frequently used items in the “knee to shoulder” range. Store lightweight items overhead and infrequently used items on lower shelves.



Arrange workstations so the majority of work is performed close in, with elbows near the sides. Frequent side tasks should be within the “normal reach radius” and infrequent side tasks within the “extended reach radius”.

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Unsafe work practices



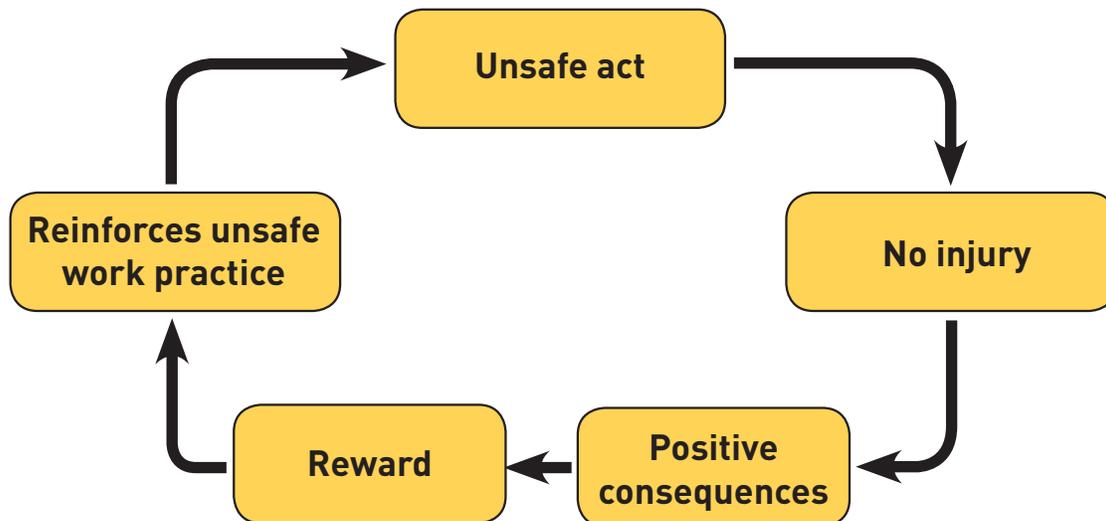
Key concerns

- Horseplay
- Improper tool use
- Unsafe lifting
- Bypassing safety devices
- Not using PPE

Unsafe work practices

The risk taking cycle

The risk taking cycle typically begins with an unsafe act that does not result in an injury. The absence of an injury is essentially a positive consequence for the risk taker, who may actually feel rewarded. These add up to positive reinforcement for taking the risk, which encourages even more risk taking.



It is estimated that more than 80 percent of all workplace accidents are the direct result of an unsafe act. Therefore, it is important that inspection teams observe work behaviors while conducting inspections.

The way behavior observations are done is dependent upon management policies and the company's safety culture. Some companies have a formal behavior observation program where areas and/or individuals are observed for safety practices, with input given on the spot. Without such a program, it may be best to passively observe and note any unsafe work practices, but not the names of the individuals observed. Management, now aware of specific unsafe work practices, can conduct training or implement other corrective measures.

The following examples were shared by SAIF safety management consultants when asked to describe the worst hazard they had ever seen. Note the unsafe behaviors associated with the causes of these accidents.

"In line with some of the other forklift 'worsts,' I saw the maintenance manager at one of my accounts standing on the mast of a forklift. He was at least 20 feet above the ground."

"My worst hazard was an individual powerwashing a concrete floor while standing in a pool of water that had extension cords snaking through it to the work lights he was using to illuminate the area."

Unsafe work practices

"I visited an employer that was manufacturing large steel plates to armor military vehicles that were being shipped to the Middle East. These plates were moved using large overhead cranes, and I would estimate the plates weighed several hundred, if not thousands, of pounds. As the crane was moving the plates, we witnessed workers standing under the plates as they were in motion. The consultant suggested to the safety contact who was with us that perhaps it was not a good idea to have workers standing directly under the plates as they were suspended from the crane and in motion."

"I was doing a safety ride-along observation with an employee when he suddenly drove through a gap in a highway divider barrier and proceeded to drive towards on coming traffic. He then made a sudden left turn into the company parking lot. He told me not to worry, he used this shortcut 'all the time.' I still remember his name."

"At an auto repair shop, I saw a mechanic working under a car that was sitting on a wooden chock placed in the center to support the weight of the vehicle."

"This would probably be mine. It was at a nursery with underground piping that had burst. When I arrived, the worker was in this vertical trench trying to repair the pipe. The trench was about six feet deep, and some of the sides had already begun to collapse."

"I once saw a small chemical products manufacturer dispensing methanol from an ungrounded, unsecured spherical fiberglass tank (a 1,000 gallon tank intended for underground use) using a swimming pool pump plugged into an extension cord and plumbed with PVC. The tank was held upright by resting on a truck tire."

Common unsafe work practices

Unsafe acts may be committed intentionally or accidentally. Anytime one is observed, it is likely that dozens of other unsafe acts went unnoticed. It is not only important to note unsafe work practices, but to determine why they occurred. Often, it is a practice that has become accepted because of poor job design, lack of appropriate equipment or inadequate training.



Horseplay



Improper or no ladder use



Improper tool use



No seat belt



Unsafe lifting



Guard removed



Bypassing safety device



Not wearing personal protective equipment

Unsafe work practices

Lifting technique



Same Side Hand and Foot™

Reach forward with one hand while stepping toward the object with the same foot.

Place the big toe side of your foot alongside it. (If it has a handle, place the little toe side of your foot next to the object.)

Flex Your Knees

Flex your knees less than 90 degrees. Any more than this and you will put excessive strain on the knee joints and surrounding muscles.



Position Elbows Closer™

Bring the load closer by lifting a corner and turning it closer to you. Not only does this put the object in a good position for lifting, it also allows you to test the weight of the load.

Align Spinal In-curves

With the load firmly gripped, look forward and align your lumbar in-curves for maximum leverage before standing with the load.

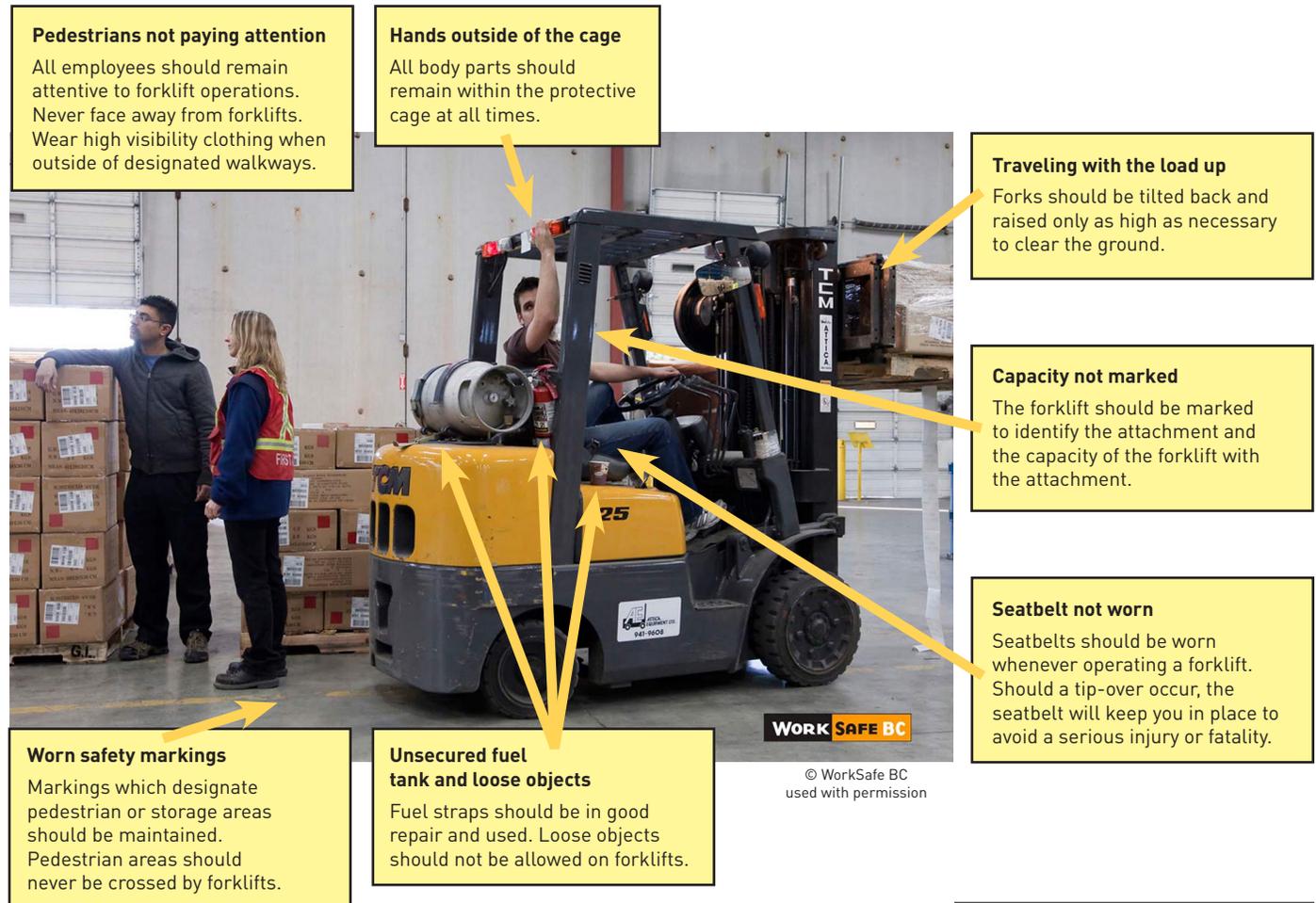


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Unsafe work practices

Forklifts or powered industrial trucks are common at many workplaces. How safely they are operated can have a major impact on worker safety and the prevention of accidents. While conducting safety committee inspections, be observant of forklift operator actions and pedestrians.

29 CFR 1910.178



Training and evaluation

Forklift operators are required to have classroom and hands-on training, plus an evaluation to determine their competency in operating a forklift. The employer must certify that each operator has been trained and evaluated. Also, operators need to be re-evaluated at least once every three years.

Conduct refresher training:

- Following a forklift accident or near-miss
- When the operator is observed operating the forklift in an unsafe manner
- When the operator is assigned to a different type of forklift
- When a change in the workplace that could affect safe forklift operations

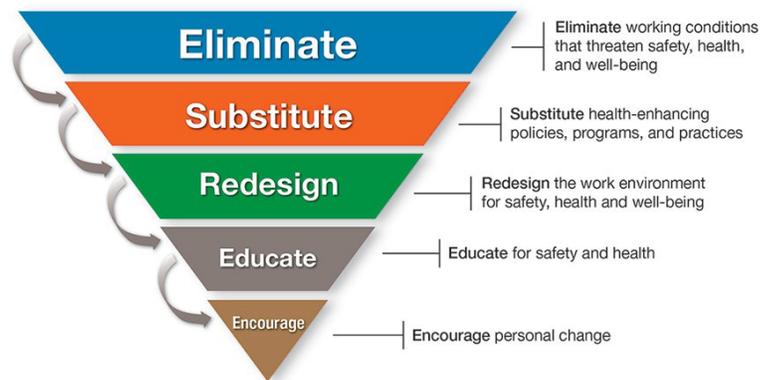
Additional forklift guidelines

- Always operate the forklift at a speed that will allow it to stop safely.
- Forklift operators should slow down and honk at cross aisles and other areas where vision is obstructed.
- Before getting off the forklift, make sure to lower the forks, neutralize the controls, and set the brakes.

Going beyond physical hazards

Health and wellbeing are significant influencers for on-the-job safety. Healthy employees are more alert, attentive, and physically fit for job tasks, which leads to greater productivity and fewer injuries and incidents. Healthier employees are also more resilient and likely to return to work sooner after an injury.

Expanding your hazard identification process to include wellbeing hazards will help identify where organizational change could help create a supportive environment for employees. Factors such as chronic health conditions, stress, fatigue, and physical inactivity can be identified as hazards to wellbeing. Consider these factors as hazards to be controlled. As seen in the hierarchy of controls below, organizational change such as elimination, substitution, and redesign will be more effective than education or encouraging personal change.



The following are a few ideas to explore:

- Do you have shiftwork or a 24-hour operation? Things to keep in mind include accommodation of sleep/wake cycles; sufficient recovery time between rotations; and good shift balance and rotation schedules. Have fatigue management resources been provided to supervisors and employees?
- Have you identified workplace stressors? This may be production pressure, crowded work spaces, lack of supervisor support, low levels of recognition or team culture. Have you considered controls for these stressors? Do employees have access to an employee assistance program or community resources to help with resilience?
- Are employees walking or doing other physical activity during their break time? Is walking during breaks or having walking meetings encouraged? Is there a safe place to walk on or near the business location?
- Is there a dedicated break area with fresh water and a refrigerator and microwave to store and prepare food from home?
- Are healthy food and beverage options in vending machines? Are healthy food choices provided at company meetings and events?
- Is fresh water provided, especially in extreme temperatures and for strenuous work tasks?
- Do employees have access to a free or low-cost health risk assessment and health screenings to help them understand their individual health risks?
- Is tobacco use allowed on campus? If yes, observe where employees smoke. Is it in a safe location away from the building entrances?

Many resources are available to provide additional information and tools to strengthen your safety inspection program.

The safety section in the employer guide on saif.com has resources on a variety of industry-specific topics. Each topic has a list of related publications, videos, trainings, and websites.

www.saif.com/safety

Oregon OSHA has several materials specifically for inspection activities.

General inspection information:

<https://osha.oregon.gov/Pages/topics/inspection.aspx>

Specific inspection checklists:

<https://osha.oregon.gov/pubs/Pages/index.aspx?type=Checklists>

Worksafe BC is an excellent Canadian safety resource with many useful materials including safety posters, inspection checklists, video clips, and hazard spotting activities.

www.worksafebc.com/en/health-safety

Oregon Institute of Occupational Health Sciences has useful data related to chemical hazards.

<https://www.ohsu.edu/xd/research/centers-institutes/oregon-institute-occupational-health-sciences/>

Our Total Worker Health® pages have a variety of resources that promote health and safety.

www.saif.com/twh

<https://www.saif.com/safety-and-health/topics/promote-health.html>

Department Inspection Form

_____ (Area or department name)

Responsible manager or supervisor: _____ Date: _____

Inspection conducted by: _____

Indicate priority of items needing attention. 1 = Low priority 2 = Medium priority 3 = High priority (Circle any IMMEDIATE DANGER items.)	
CHECK ITEMS NEEDING ATTENTION.	DESCRIBE DEFICIENCIES NOTED AND ACTIONS REQUIRED.
WALKING AND WORK SURFACES <input type="checkbox"/> Housekeeping <input type="checkbox"/> Aisles <input type="checkbox"/> Exits <input type="checkbox"/> Work surfaces <input type="checkbox"/> Stairs and ladders <input type="checkbox"/> Other	
MACHINERY <input type="checkbox"/> Point-of-operation guarding <input type="checkbox"/> Barriers and gates <input type="checkbox"/> Interlocks <input type="checkbox"/> Lockout tagout <input type="checkbox"/> Other	
ELECTRICAL <input type="checkbox"/> Panel clearance maintained <input type="checkbox"/> Circuits marked <input type="checkbox"/> Extension cords <input type="checkbox"/> Grounding and GFCI <input type="checkbox"/> Other	
CHEMICAL <input type="checkbox"/> MSDSs available and organized <input type="checkbox"/> Container labeling <input type="checkbox"/> Storage and arrangement <input type="checkbox"/> Flammables in approved safety containers and cabinets <input type="checkbox"/> Any spillage or leakage <input type="checkbox"/> Cylinders secured <input type="checkbox"/> Other	

Indicate priority of items needing attention.

1 = Low priority | 2 = Medium priority | 3 = High priority (Circle any IMMEDIATE DANGER items.)

CHECK ITEMS NEEDING ATTENTION.	DESCRIBE DEFICIENCIES NOTED AND ACTIONS REQUIRED.
<p>ENVIRONMENTAL</p> <ul style="list-style-type: none"><input type="checkbox"/> Airborne contaminants<input type="checkbox"/> Ingestion hazards<input type="checkbox"/> Skin contact<input type="checkbox"/> Noise<input type="checkbox"/> Temperatures<input type="checkbox"/> Illumination<input type="checkbox"/> Ventilation<input type="checkbox"/> Personal protective equipment<input type="checkbox"/> Other	
<p>ERGONOMICS</p> <ul style="list-style-type: none"><input type="checkbox"/> Awkward postures<input type="checkbox"/> Repetitive motion<input type="checkbox"/> Forceful exertions<input type="checkbox"/> Contact pressure<input type="checkbox"/> Work station design<input type="checkbox"/> Other	
<p>UNSAFE BEHAVIORS</p> <ul style="list-style-type: none"><input type="checkbox"/> Horseplay<input type="checkbox"/> Unsafe lifting<input type="checkbox"/> Improper tool use<input type="checkbox"/> Bypassing safety devices<input type="checkbox"/> Not using PPE<input type="checkbox"/> Risk taking in general<input type="checkbox"/> Other	
<p>AREA SPECIFIC HAZARDS</p> <ul style="list-style-type: none"><input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____<input type="checkbox"/> _____	

**Example of correspondence
with responsible party for hazard corrections**

(Company name)
Safety committee report

Date:

To:
Re: Safety inspection

During the safety committee inspection on your area on the above date, the following hazards or unsafe behaviors were observed. Please review and respond, noting actions or intended actions, and return by *(date)*.

Yours in safety

(Name of safety committee chair or safety coordinator)

Item:

Actions:

Date completed:

Item:

Actions:

Date completed:

Item:

Actions:

Date completed:

"Gotcha stick" template

Transfer the above template to wood, plastic, metal, or other durable material. To test if a guard's openings are narrow enough, insert the narrow tip of the gotcha stick between the widest openings.

As long as the tip does not reach the point of operation, the guard openings are narrow enough.

Note: Because some printers will render this image differently, make sure you double check the template's dimensions for accuracy.

