

Safety Responsibilities

CONSTRUCTION COORDINATOR

Safety Program Information for Construction Coordinator

The following information is for your specific position and is provided to help you understand your part in your Production's **Injury & Illness Prevention Program (IIPP)/Safety Program**.

Responsibilities of the Construction Coordinator

The Construction Coordinator is responsible for conveying current safety requirements to all construction crewmembers, provides guidance for meeting IIPP goals and supervises, trains and sees to it that the construction department heads/supervisors meet their IIPP responsibilities. The **Construction Coordinator** is the person responsible for implementing the Safety Program on the Construction side.

Production Start-Up

1. Obtain and read the **IIPP/Television Production Safety Manual** from the **Line Producer** or **safetyontheset.com** the first week of employment and prior to any construction. The manual is meant to provide guidance and clarification to possible questions.
2. Hire only employees who have the proper safety training for, and who understand how to safely perform, any task they are asked to do. (*In Southern California, this includes completion of all Safety Pass training required by their job classification. See www.csatf.org for more information.*) If you need help arranging training, call the **Production Safety Representative**.
3. Make sure everyone you hire receives a copy of **Form 1 – General Safety Guidelines for Production** and signs an **Employee Acknowledgment**.
4. Conduct safety meetings on the first day of construction for your crew:
 - a. Explain the safety program.
 - b. Check the employee's Safety Passport for completeness; visit **www.csatf.org**.
 - c. On productions out of Southern California: Check all equipment operators to see that they carry a Certification for each piece of equipment they will be asked to drive (e.g. Forklift Safety Card, Aerial Platform Training, powder-actuated tool operator's "Hilti Card," etc.) Make a copy of these certifications and keep them on file with the **Production Manager**.
 - d. Discuss the safety aspects of the day's activities and the potential hazards of the location (e.g. overhead power lines, etc.)
 - e. Discuss elements of the **Emergency Plan**, such as the location of emergency equipment, exits, and telephones on stages or interior sets and off-lot locations, and explain emergency procedures, location of fire extinguishers, and evacuation plans in case of fire – including specific directions to a **post-evacuation assembly area**.
 - f. Discuss safety precautions to be followed around any specialized equipment that may pose a potential hazard (e.g. aerial lifts, paints, chemicals, etc.).
5. Conduct or arrange safety training for all crew members:
 - a. Hazard Communication Training for chemical containing products.
 - b. Personal Protective Equipment for eye, ear, respiratory, etc. hazards.
 - c. Fall Protection for workers exposed to heights.
 - d. Special tools, equipment, or vehicles used.
 - e. Use the **Codes of Safe Practices (CSP's)** found at **safetyontheset.com** and a power tool manual to ensure the employee understands safe operation. Have employee demonstrate if in doubt.
 - f. Document all training and forward to the Production Manager.
6. Conduct additional meetings in the following situations:
 - a. Anytime the crew is exposed to a new hazard (e.g. asbestos containing material, new equipment, confined space, high tension wires or any other site concern, etc.)
 - b. Whenever a new crewmember or independent contractor arrives (This may be delegated to the foreperson).

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- c. Anytime there is a change in work site or multiple work sites the foreperson at each site should give a safety orientation, including emergency action, and conduct **Tool Box Talks** (available at safetyontheset.com.)
- d. Anytime there is an injury, review with all crew applicable safety rules.

On Production

Implement the IIPP:

1. Conduct a **Tool Box Talk** every 10 working days and have all attending employees sign the **Tool Box Talk Attendance Form**.
2. Conduct an inspection of the construction area of all stages and locations every 10 working days, and document any problems found and corrections made by using **Form 6 – Mill/Stage/Location Construction Hazard Assessment Checklist**.
3. See to it that safety literature is properly distributed.
 - a. Distribute **AMPTP Safety Bulletins** (available at safetyontheset.com) relating to specific hazards as they occur and/or attach to the call sheet (e.g. elevating platforms, etc.).
 - b. With help from the Production Safety Representative see to it special literature, such as **Safety Data Sheets** (SDS) or industrial hygiene test results are available if requested by any crewmember (e.g. analysis for lead / asbestos, paints, dust, etc.)
4. Document all safety training and forward copies to the **Production Manager**.
 - a. Any bulletins or correspondence regarding safety should be forwarded to the Production Manager.
 - b. Document all safety training and forward copies to the Production Manager.
5. See that the **Location Manager** provides you with a **Form 7B – Prep/Strike Location Safety Information** and review the information with your crew.

Communicate and Troubleshoot:

1. See to it that safety equipment is provided and being used (e.g. earplugs, harnesses, eye protection, hard- hats).
2. Confirm that all tools and equipment are inspected and have the proper safety features.
3. All safety guards should be in working order and in place.
4. Verify that the crew has the proper certification for any specialized equipment used, such as, elevated platforms, forklifts, powder-actuated tools, etc. Check their Safety Passports.
5. Enforce General Safety Guidelines for Production. Use the Safety Warning Notice (Form 12) to document verbal warnings, and disciplinary actions.
6. Consult with the **Line Producer** and/or the **Production Safety Representative** to resolve safety concerns; such as, confined space issues, ventilation problems, rigging fall protection for elevated work, or other safety matters.
7. Address crew safety issues until they are resolved.
8. Correct any hazards that have been discovered at the site (e.g. blocked exits, improper material storage, hazardous materials on site, faulty equipment, etc.).

Instruct your Medics to notify the Production Safety Representative of any serious injury or illness.

Coordinate response to serious accidents and emergencies:

Respond to all work site emergencies and accidents that result in death, serious injury, hospitalization, major property damage or events that create imminent danger:

1. Summon emergency medical assistance immediately (911).
2. Clear the area and protect the crew from further injury. (Take equipment out of service or post sign.)
3. Preserve evidence for further investigation.
4. Immediately notify the EIC/LP. If not available, notify the Stage Manager and the Production Safety Representative.

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Coordinate OSHA/Government Inspector/Investigator activities:

If visited by OSHA or other governmental agency, take the following actions:

1. Immediately notify the **Line Producer**. If not available contact the Stage Manager and the Production Safety Representative.
2. Request the official's credentials and determine their validity.
3. Tell the inspector it is company policy to have a representative of the Department of Safety & Environmental Affairs present for any inspection. Ask them politely to wait, and contact the Production Safety Representative immediately.
4. Determine the nature of the visit. Be courteous, be quiet and be cautious.
5. If the inspector refuses to wait, accompany the official directly to the site in question. Go straight to the site and try not to let the official wander into other areas.
6. Do not sign anything or provide written documentation. Ask that their request for documentation be placed in writing so it may be responded to in writing.
7. Ask for explanations of the problem and welcome any suggestions for corrective action.
8. If the inspector/investigator wants to take photographs, they may. You should however take your own pictures of any area that they photograph.
9. Answer questions directly; however, do not volunteer information.
10. Make detailed notes immediately after the official has departed. Copies are to be sent to the **Production Attorney** and to the Production Safety Representative.
11. Refer to "OSHA Inspection Guidelines" and "Regulatory Agency Inspection Guidelines" (Section 4 of the IIPP/Safety Manual) for more information.

Show Wrap

Forward all documentation of safety program to the Production Office:

1. Tool Box Talks
2. Inspection Forms
3. Safety training records

Hazardous Waste Disposal

It is Company policy that all chemicals will be disposed of in accordance with the laws of the city, county and state in which they are used. If you need to arrange for the disposal of paint or other chemicals, contact the Production Safety Representative.

CONSTRUCTION HAZARD ASSESSMENT CHECKLIST

For any items found to be deficient, follow up with appropriate Key or Department Head, or Production Safety Consultant

Production Name:		To Be Completed By:	<i>Construction Coordinator/Staging Supervisor</i>
Copies Sent To:	<i>Production Safety Consultant</i>	To Be Stored By:	<i>Production Office Coordinator</i>
Production Location:		Today's Date:	
Special Instructions:	<i>Complete a Hazard Assessment Checklist every other week for every Construction Mill or location.. **Mark "N/A" for any items not applicable to your stage.**</i>		

GENERAL

<input type="checkbox"/>	<input type="checkbox"/> N/A	Safety Poster completed and displayed in a location where all employees are likely to see it.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Entrances to stage are clear of trip hazards.
<input type="checkbox"/>	<input type="checkbox"/> N/A	General housekeeping in good order.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Fire extinguishers accessible and "FIRE EXTINGUISHER" signs visible.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Appropriate safety equipment available.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Appropriate machine guards - including push sticks - available and in use.
<input type="checkbox"/>	<input type="checkbox"/> NA	Appropriate Person Protective Equipment (PPE) available and in use.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Four-foot perimeter, aisles and passageways free of hazards.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Flats appropriately secured and braced.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Pits and floor openings covered or otherwise guarded.
<input type="checkbox"/>	<input type="checkbox"/> N/A	All exits free of obstructions and "EXIT" signs visible.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Directions to exits, when not immediately apparent, marked with visible signs.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Standard stair rails or handrails on all stairways having four or more risers.
<input type="checkbox"/>	<input type="checkbox"/> N/A	No storage under occupied raised platforms.

PAINT AND CHEMICAL PRODUCTS

<input type="checkbox"/>	<input type="checkbox"/> N/A	Covered metal cans used for paint and paint-soaked waste.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Portable eye wash station present and "EYE WASH" sign is visible.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Paints, adhesives, solvents and chemicals kept in closed containers when not in use.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Each container (vat, bottle, storage tank, etc.) for a hazardous substance labeled with product identity and hazard warning.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Pressure vehicles/cylinders properly stored.
<input type="checkbox"/>	<input type="checkbox"/> N/A	All propane has been removed from the stage.
<input type="checkbox"/>	<input type="checkbox"/> N/A	All paint and chemical-containing products disposed of properly using certified hazardous waste company.
<input type="checkbox"/>	<input type="checkbox"/> N/A	<i>No paint or chemical products allowed in storm drains, sinks, or toilets.</i>

AERIAL PLATFORMS AND LADDERS

<input type="checkbox"/>	<input type="checkbox"/> N/A	Only trained and authorized personnel allowed to operate aerial platforms.
<input type="checkbox"/>	<input type="checkbox"/> N/A	Approved safety harnesses and lanyards worn when using aerial platforms.
<input type="checkbox"/>	<input type="checkbox"/> N/A	All ladders maintained in good condition and safety labels visible. (Take note of joints between steps and side rails, all hardware and fittings, and movable parts.)
<input type="checkbox"/>	<input type="checkbox"/> N/A	Ladders kept clear of doorways, exits, and passageways.
<input type="checkbox"/>	<input type="checkbox"/> N/A	When a ladder is used to gain access to an elevated work area, the ladder extends at least 3 feet above the elevated surface.

<input type="checkbox"/>	NOTES:	<i>Please contact the Production Safety Representative if any unsafe conditions exist.</i>

<input type="checkbox"/> Surveyed By:	<input type="checkbox"/> Title:
<input type="checkbox"/> Signature:	

ACCIDENT INVESTIGATION REPORT

(Send to Production Manager when completed.)

*To be completed for EVERY injury or illness, regardless of severity.
For serious injuries or illnesses, see Form 4: Serious Incident Reporting Procedures.*

EMAIL OR FAX (818-954-2805) TO PRODUCTION SAFETY CONSULTANT WITHIN 24 HOURS OF ACCIDENT

PRODUCTION NAME: _____

DATE: _____

INJURED'S NAME: _____

TITLE: _____

DATE OF ACCIDENT: _____

TIME OF ACCIDENT: _____ AM ____ PM ____

LOCATION OF ACCIDENT: _____

Type of Injury/Illness

(Check all that apply)

Fracture	Amputation	Head Injury	1 st Degree Burn	Foreign Body in Eye	Bite/Sting
Strain	Laceration	Neck Injury	2 nd Degree Burn	Contact Dermatitis	Splinter
Sprain	Avulsion	Back Injury	3 rd Degree Burn	Allergic Reaction	Nausea
Dislocation	Abrasion	Abdomen Injury	Tooth Injury	Rash	Illness*
Contusion	Puncture	Crushing Injury	Hearing Loss	Infection	Other*

- Describe Illness or Other:

Injured Part of Body

(Check all that apply)

	Head	Chest	Shoulder	Wrist	Upper Leg	Foot	Eye	Mouth
Right	Neck	Ribs	Upper Arm	Back of Hand	Knee	Toe	Nose	Tooth
Left	Back	Abdomen	Elbow	Palm of Hand	Lower Leg	Forehead	Cheek	Throat
	Buttocks	Pelvis Area	Lower Arm	Finger (Digit_____)	Ankle	Ear	Chin	Other*

- Describe Other:

Explain Cause of Accident and Nature of Injury: (DO NOT SPECULATE)

Corrective Action Taken to Prevent Recurrence:

Witnesses, If Any:

Form Completed By (Print):

Title:

Signature: _____ Date: _____

WARNING

TABLE SAWS

- **Keep Guard* in Place**
- **Wear Safety Glasses**
- **Use A Push Stick**
- **No Gloves**

** Check with your supervisor before removing guard.*

Anonymous Safety Hotline: (877) 566-8001

Tool Box Talk Attendance Form

Department:

Department Head:

Instructor:

Date:

Tool Box Talk Topic:

Sign-In Sheet

Print Name		Sign Name	Job Description/Local
1.			
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20.			

Fall Protection Basics

Falls are among the most common causes of serious work-related injuries and deaths. Employers must take measures in their workspaces to prevent employees from falling off of overhead platforms, elevated work stations, roofs or aerial lifts or into holes in floor and walls.

To prevent employees from being injured from falls, employers must:

- Guard every floor hole into which a worker can accidentally walk by use of a railing and toeboard or a floor hole cover.
- Provide a guardrail and toeboard around every open-sided platform, floor or runway that is 4 feet or higher off the ground or next level.
- Regardless of height, if a worker can fall into or onto dangerous machines or equipment, employers must provide guardrails and toeboards to prevent workers from falling and getting injured.
- Other means of fall protection that may be required on certain jobs include safety harness and lanyard or self-retracting lifeline (SRL), stair railings and handrails.



OSHA requires employers to:

- Provide working conditions that are free of known dangers.
- Keep floors in work areas in a clean and sanitary condition.
- Select and provide required personal protective equipment at no cost to workers.
- Train workers about job hazards in a language that they can understand.

For additional information regarding fall protection or workplace safety, visit
www.safetyontheset.com



S & EA
The Department of Safety and
Environmental Affairs

Recognizing and Understanding Hazardous Chemical Warning Labels

Understanding warning labels will help you to handle and use hazardous chemicals properly and to avoid health and safety problems at the worksite. The Hazard Communication Standard—or HazCom—requires all hazardous chemical containers to have warning labels on them or on a sign placed near the container.

What You Can Find on a Warning Label

- ◆ the name of the chemical
- ◆ the name, address and telephone number of the manufacturer or importer
- ◆ the chemical code number
- ◆ one of three signal words indicating the danger level of the chemical: "Warning," "Caution" or "Danger"
- ◆ the word "Poison" if the chemical is highly toxic
- ◆ physical hazards (flammable, explosive, corrosive, etc.)
- ◆ health hazards (eye, lung and skin irritation, burns, etc.)

Some warning labels may also show:

- ◆ how to store the chemical.
- ◆ how to dispose of the chemical.
- ◆ what personal protective equipment to use with the chemical.
- ◆ how to clean up the chemical.
- ◆ how to handle leaks or spills.
- ◆ first aid instructions for exposure.

Always Read the Label

When you take responsibility for knowing the contents of chemical containers, you protect yourself and every other worker at your worksite.

- ◆ Always read the warning label whenever you use any hazardous chemical. Even if you've used the same chemical many times, the manufacturer may have changed the formula or provided the wrong concentration.
- ◆ Avoid identifying chemicals by the label's color or design alone.
- ◆ If the label raises any questions in your mind about the appropriateness of your environment and protective equipment, check your company's policy or consult your supervisor before using the chemical.

Warning Labels Are Everyone's Responsibility

Making certain that hazardous materials are properly labeled is a responsibility that all workers must share.

- ◆ If you find a container without a label or with a torn or illegible label, report it to your supervisor immediately.
- ◆ Don't attempt to handle a chemical without a label until you know what it is.
- ◆ If you're carrying hazardous chemicals in a portable container that someone else might use, label the container to ensure the safety of other workers.



SAFETY CHECKLIST

- ☐ I always read the warning label every time I work with the chemical.
- ☐ I make sure each chemical in my area has a label.
- ☐ I report missing or illegible labels.
- ☐ If I don't understand the information on the label, I ask for help.
- ☐ I always follow the instructions on the label.
- ☐ I make sure labels aren't covered up or removed.
- ☐ If I need to know more information about a chemical, I read the MSDS.

Suit Up for Safety

Wearing the proper clothing and personal protective equipment for each job you do can help protect you from serious injury and even death. Each year, more than 2 million workers suffer serious on-the-job injuries and illnesses. Most personal protective equipment (PPE) may seem bulky and uncomfortable, but you need to have it on before it's too late. So you must know which hazards you may encounter before you work.

HEAD HAZARDS



If you work in an area where there's a possible danger of head injury from impact, falling or flying objects or electrical shock or burns, then you must wear head protection. Hard hats are specifically designed to resist penetration and to absorb the shock of a blow. Ask your supervisor which type of hard hat you need to wear.

RESPIRATORY HAZARDS



If the air in your workplace contains fine particles, sprays, mists or toxic gases, you should wear respiratory protection. Air-purifying respirators filter contaminants out of the air. Supplied-air respirators provide a source of air when there's not enough oxygen. Masks for fumes, dust and particulate can also protect your respiratory system. Talk with your supervisor about which type of respirator you should use.

EYE HAZARDS



If anything in your workplace can fly, splash or drift into your eyes, you need eye protection. Common causes of eye injury when eyes are unprotected include flying objects or particles; splashing liquids and metals; drifting gases, vapors, dusts, powders, fumes and mists; thermal and radiation hazards, such as heat, glare, ultraviolet and infrared rays; lasers; and electrical hazards. Safety glasses, goggles and face shields are designed to protect against impact from objects, irritating substances, chemical and other splashes, extreme heat and many other hazards. Ask your supervisor which type of eye protection you need and when to wear it.

HEARING HAZARDS



If you have to shout to be heard on the job, you're working in noise levels that are high enough to damage your hearing over time, so you need to wear hearing protection. Hearing protection devices, such as earplugs and earmuffs, screen out loud, harmful noises while allowing you to hear what you need to hear. Talk with your supervisor about the correct hearing protection for you.

FOOT HAZARDS



If you work in an area where it's possible that your toes, ankles or feet could be injured by sharp objects, falling objects, impact, slipping, tripping, electrical hazards, chemical spills or heat hazards, then you need to wear foot protection, such as steel-toed boots. Consult with your supervisor to find out which type of foot protection you should wear.

HAND HAZARDS



If your hands are exposed to possible injury from machinery, heat, cold, electricity, chemicals, toxic substances, materials such as metal, wood, concrete, mortar, paint, tools, etc., you need to wear hand protection. The proper hand protection, in the form of gloves, mitts, thimbles, finger cots, hand pads, barrier creams and arm cuffs can protect you from abrasions, cuts, lacerations, punctures, crushing, burns, heat and cold, dermatitis and other injuries. Ask your supervisor which type or types of hand protection you need.

Using Machine Guards for Safety

Most of the machinery you work with is probably equipped with safety guards. Guards are designed to protect you from numerous dangers, including moving or sharp machine parts, flying sparks or particles and hot surfaces.

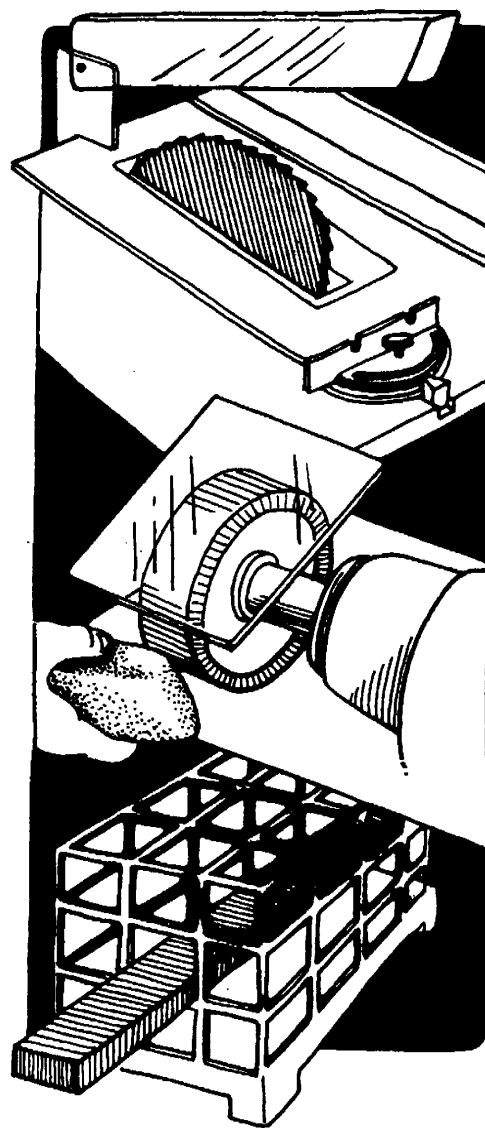
Guards help protect your arms, hands and fingers, which are especially vulnerable to injury from a variety of machinery parts: cutting edges, punching and shearing parts, rotating and in-running shafts and pointed objects.

The machines you use should have guards if there's any way your hands could come into contact with the point of operation or any moving parts. There should be no way for your hands or fingers to get in from any angle, and the guard itself should not have any sharp surfaces or pinch points. Common guarding methods include:

- ✓ enclosures.
- ✓ interlocking devices.
- ✓ remote control.
- ✓ electronic safety devices.
- ✓ removal devices.
- ✓ moving barriers.
- ✓ two-handed tripping devices.

Machine Guard Safety Rules

- Never remove or bypass a guard or other safety device.
- Never operate a machine if a guard is missing, modified or not working properly.
- If a guard must be removed for maintenance, make sure it's replaced and working properly before operations resume.



WORKING WITH GUARDS

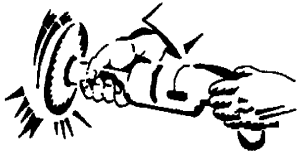
There's never any good reason to remove or modify a guard on a machine that you're using. Even if you think you can work faster without the guard, it's there to protect you and help you do the job more safely. Talk to your supervisor if you're worried about meeting production goals or if you think the guard should be changed.

Using Power Tools Safely

Power tools make it possible to do many tasks quickly and efficiently. But because they use electricity and have fast-moving parts, you must exercise extra caution when using them. Follow these safety rules when using power tools:

POWER TOOL SAFETY TIPS

- Wear the proper personal protective equipment for the job.
- Before you use it, inspect the tool for broken parts, loose bolts, defective or broken cord insulation, plugs or switches, or improper connections.
- Only use equipment that's in good condition.



- Test the tool before you use it. For example, for a cutting tool, test its sharpness with a piece of wood, not your fingers.
- To prevent shock, make sure your tool is properly grounded and double-insulated.
- Keep power cords away from heat, sharp objects and chemicals that could damage their insulation.
- Be sure to keep your work area dry.
- Never use electrical equipment when your hands are wet or any part of you is touching water.
- If you must work in a wet area, keep the power cord clear of wet surfaces and use a ground fault circuit interrupter (GFCI).

- Keep your work area free of debris.
- Use tools in well-lit areas.
- Never use electric tools where flammable vapors or gases are present.
- Report unsafe conditions, such as defective cord insulation, poor connections to terminals, broken switches or plugs, sparking or overheating equipment, and outlets without GFCIs in damp areas.
- Never carry a power tool by the cord or hose.
- Disconnect tools before changing accessories, such as blades, bits or cutters, and before servicing or inspecting them.
- Secure your work material with clamps or a vise if possible.
- Avoid wearing clothing or jewelry that may become caught in a tool.
- Report equipment as unsafe if it has insulation defects, if it sparks or if you feel any shock or tingling when using it.
- Start and end from "off." Make sure the power switch is off before plugging in equipment. When you're finished, turn the equipment off before unplugging it to protect yourself and the next user.
- When you turn off a tool, let it stop completely before

putting it down in a safe place.

- Never horseplay around power tools.
- Avoid kinking, cutting or crushing any electrical cord.
- If equipment has a three-prong plug, use a three-slot outlet or extension cord.
- Never modify three prongs to fit two slots by removing the third prong. Use an adapter instead, making sure that the metal grounding piece on the adapter is connected to a grounded object, such as the screw on the receptacle cover plate.
- Avoid overstraining equipment by using it improperly.
- Service equipment regularly and repair or replace it as needed.
- Pay attention to the direction of the tool's rotation. You're responsible for seeing that no one is in the path of flying objects.
- Use the switch lock only when the tool is in a stand or jig.
- Make sure you have good footing when you're using heavy tools or working at an awkward angle, such as overhead.

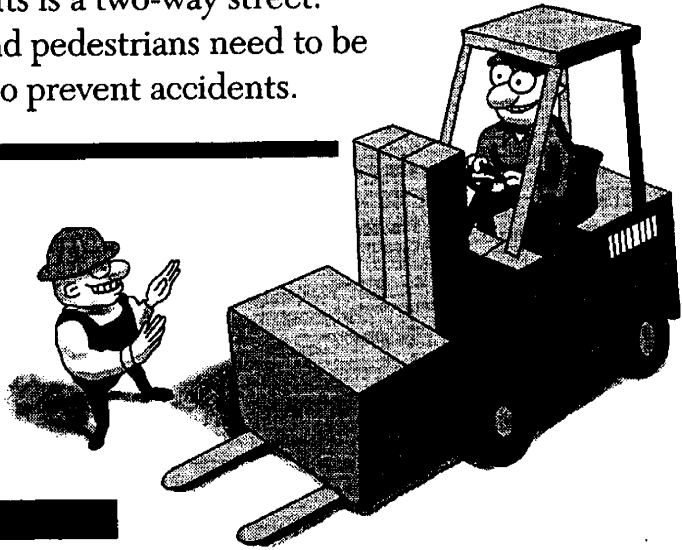


Preventing Forklift Accidents

Working safely with and around forklifts is a two-way street: Operators need to take precautions and pedestrians need to be alert and stay out of the way in order to prevent accidents.

Forklift Dangers

- ✓ injuries to pedestrians
- ✓ collisions
- ✓ falling loads
- ✓ tipping over



SAFETY RULES FOR OPERATORS

- Get training on how to operate the forklift.
- Always wear your safety belt and hard hat.
- Keep your hands and feet inside the cab.
- Always check for pedestrians.
- Inspect the forklift daily and report any problems.
- Make sure pallets are well-stacked and secured.
- Keep loads centered to avoid losing balance.
- Keep loads low to the ground when moving—no more than 10 inches high.
- Make extra trips instead of overloading.
- Know your forklift's capacity and stay within the load limit.
- Use a forklift only for its intended purpose—it's not a means of transportation.
- Make sure the forklift you're unloading has been secured to prevent its movement during unloading.
- Make sure loads don't obstruct your view.
- Use extreme caution when turning.
- Move slowly when on wet surfaces.
- Keep your forklift in good working order.
- Always park on a flat surface away from traffic and set the parking brake.
- Never give people a ride on the forklift.
- Sound your horn at intersections.
- Always lower forks to the ground when parking.

SAFETY RULES FOR PEDESTRIANS

- Work in designated areas only.
- Avoid shortcuts through traffic areas.
- Never walk under the raised load of a forklift.
- Stop and look both ways at intersections.
- Stay clear when a forklift is backing up or turning.
- Watch out so you don't trip on the lowered forks of a stopped forklift.
- Pay attention to what's going on around you at all times.
- Listen for horns and look for flashing lights.
- Let the forklift operator know when and where you're working in an area.
- Never hitch a ride on a forklift.
- Never engage in horseplay around a forklift.

Keys to Ladder Safety

Ladders can be a great help on the job. They're simple to use and get you where you need to be. Although ladders are uncomplicated devices, they can be dangerous. It's important to know and follow ladder safety guidelines.

Choose the Right Ladder for the Job

- Make sure your ladder's strong enough and long enough for the job.
- Check the ladder's duty rating and don't exceed its limits. Type I, an industrial ladder, holds 250 pounds. Type II holds up to 225 pounds. Type III, the household ladder, holds up to 200 pounds.
- Remember to consider the weight of your tools when selecting a ladder.
- If you work around electrical wires or power lines, use a wooden or nonconductive fiberglass ladder, not metal.
- Never connect two short ladders to form a long one.

Inspect Your Ladder Before You Use It

- Check for loose or bent rungs, cracked side rails or bent or missing parts.
- Make sure the spreaders can be locked in place when opened.
- Metal ladders should have plastic or rubber feet and step coverings.
- Check for oil and grease on the rungs which could cause you to slip.
- Replace missing parts and tighten loose hardware.
- Avoid repairing major structural damage. Instead, get a new ladder.
- Make sure the steps are wide enough for you to spread your feet for balance.

Set Up Your Ladder Carefully

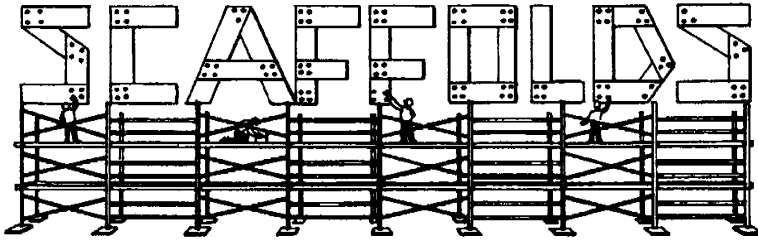
- Place your ladder on a firm, level surface with its feet parallel to the wall it's resting against.
- Use the 4-to-1 ladder rule: Set the base of your ladder 1 foot away from the wall for every 4 feet of ladder height.
- In busy areas, use a barricade to prevent collisions.
- Lock nearby doors that could open toward you.
- Always tie off your ladder. Lash straight ladders at the top and bottom.
- The top of a straight ladder should extend 3 feet beyond its resting point.
- Carry your ladder vertically, or use two people—one at each end.

Climb Cautiously

- Face the ladder when you climb up or down.
- Hold on to the side rails with both hands.
- Carry only necessary tools on your belt.
- Use a rope to raise heavier equipment.
- Never overreach.
- Use the "belt buckle" rule. Always keep your body centered between the rails.
- Always wear a safety harness if you're climbing more than 6 feet off the ground.
- Allow only one person on a ladder at a time.
- Wear shoes with nonskid soles.
- Make sure your hands are dry and free of grease.
- Never step on the top two rungs of a ladder.
- Never use a ladder for anything other than its intended purpose.



Staying Safe Around Scaffolds



Scaffold Safety Rules

- Supported scaffolds must sit on base plates and mud sills or other steady foundations.
- Objects such as blocks of wood or buckets must not be used to support scaffolds or be used as working platforms.
- Supported scaffold poles, legs, posts, frames and uprights must be perfectly vertical and braced to prevent swaying and movement.
- The inboard ends of suspension scaffold outriggers must be stabilized by bolts or other direct connections to the floor or roof deck, or stabilized by counterweights.
- The connections must be checked before you use a suspension scaffold.
- Counterweights must be secured by mechanical means to the outrigger beams of a suspension scaffold. They can't be made of flowable material, such as gravel, or construction materials, such as masonry units or rolls of roofing felt.
- Suspension ropes must be inspected before each work shift and after every event which could affect a rope's integrity.
- Report any rope problems to your supervisor, such as any physical damage which doesn't allow the rope to work properly or that makes it weaker; kinks that might cause a problem during tracking or wrapping around a drum; and broken wire strands, abrasions, corrosion or

flattening, causing loss of more than one-third of the original diameter of the outside wires.

- Gasoline-powered equipment and hoists must not be used on suspension scaffolds.
- Gears and brakes of power-operated hoists used on suspension scaffolds must be enclosed to prevent pinch hazards.
- Two-point and multipoint suspension scaffolds must be tied or secured to prevent them from swaying. Window cleaners' anchors can't be used for this purpose.

Platforms and You

- For every 4 feet of a scaffold's height, its plank must be at least 1 foot wide. If it isn't, it must be protected from tipping by tying, bracing or guying.
- The front edge of the platform must not be more than 14 inches from the face of your work unless guardrails are erected along the front edge. Note that the maximum distance from the face of work for plastering and lathing is 18 inches.
- The ends of your platform, unless cleated or somehow restrained, must extend over the center line of its support at least 6 inches except when each end of your platform is 10 feet or less in length, and then it must not extend over its support more than 12 inches. When each end of a platform is greater than 10 feet in length, it must not extend over its support more than 18

inches, unless it's designed to support workers and/or materials without tipping, or it has guardrails to block workers' access to the platform end.

- Wooden platform planks should be rough-dressed, seasoned, straight-grained and free of knots.
- Never drill, cut or nail into planks or allow them to be damaged by welding sparks or by throwing them.
- Test the plank by laying it across two concrete blocks and having two people stand in the center.
- Always secure the plank by wiring it to the scaffold.

Using Scaffolds

- Before each shift, inspect the scaffold and plank for defects.
- Always inspect the scaffold to ensure all pins and clips are in place. Look for any damage or parts that need repair.
- Never load a scaffold to more than its maximum intended load or rated capacity.
- Never work on scaffolds during storms or high winds.
- Avoid letting debris accumulate on your scaffold.
- Remove elements such as ice, snow, water, grease, mud and other slippery materials from your scaffold.
- Always use fall protection when working on a scaffold platform.
- Never use the crossbraces to gain access to a scaffold.
- Never use improvised scaffolding such as piling boxes on top of the plank.
- Remove all materials and tools from scaffolding at the end of the day.
- Place screen or toe boards around the scaffold to keep objects from falling off.
- Never allow vehicles or materials to bump or strike scaffolds.

Lockout/Tagout Is Serious Business

Machinery or equipment that starts up unexpectedly or releases stored energy while someone is performing maintenance or repairs can cause serious injury. Lockout/tagout procedures prevent these types of accidents from happening. Although only authorized employees are permitted to perform lockout procedures and to remove locks and tags, all employees need to understand lockout and tagout procedures.

What Is Lockout?

Lockout means putting a lock on a machine or piece of equipment to make sure it stays off. Electrical, mechanical, chemical, thermal, hydraulic, pneumatic, raised-weight, pressurized and coiled-spring systems must be neutralized for safety during maintenance and repairs.

A lockout device is a lock, block or chain that keeps a switch, valve or lever in the "off" position. Lockout locks must meet special requirements and must be identified by the name of the worker who installs and removes them. Only use locks provided by your employer for lockout purposes. Never use these locks for toolboxes, storage sheds or other uses.



What Is Tagout?

When equipment can't be locked out, it must be tagged out with a special tag that warns workers to not start up the equipment. A tag is not a physical restraint. Tags must clearly state: "Do not operate or remove this tag." Tags must be placed on each handle, push button, lever or circuit breaker used to energize the equipment.

Tags must meet special requirements and show the identity of the authorized employee. Both locks and tags must be strong enough to prevent unauthorized removal and to withstand various environmental conditions.

LOCKOUT STEPS

1. Identify all parts of any systems that need to be shut down. Find the switches, valves or other devices that need to be locked out.
2. Tell employees that the equipment will be locked out and why.
3. Locate all power sources, including stored energy in springs or hydraulic systems.
4. Neutralize all power at its source. Disconnect electricity; block moveable parts; release or block spring energy.
5. Drain or bleed hydraulic and pneumatic lines.
6. Lower suspended parts to rest positions.
7. Lock out all power sources. Use a lock designed for this purpose. Each worker should have a personal lock.
8. Test operating controls. Turn on all controls to make sure the power doesn't go on.
9. Turn controls back to "off."
10. Perform necessary repairs or maintenance.

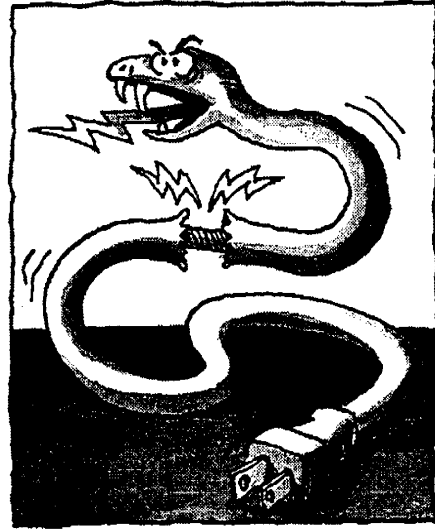
Restarting Equipment

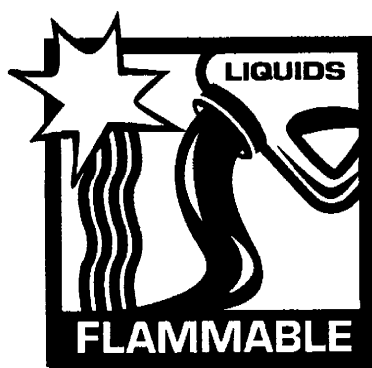
After the maintenance or repair work is completed, only the same authorized employee who installed the lock may remove and restart the equipment. Before restarting the equipment:

- make sure all other workers are a safe distance away.
- remove tools from the equipment.
- reinstall machine guards.
- notify workers that the energy is restored and the machine is working.

Fifteen Things to Remember When Working With Electricity

1. Keep water and electricity far apart.
2. Make sure all equipment is properly grounded and plugged into grounded circuits.
3. Inspect all electrical equipment, tools, cords and outlets for defects. Only use equipment that's in good working order. Report any unsafe conditions you may find.
4. Never wear metal jewelry or headgear when working with electrical parts.
5. Always wear protective equipment such as rubber gloves, sleeves and boots.
6. Use nonconductive or double-insulated tools.
7. Keep electrical cords and cables clean and free from kinks.
8. Never carry equipment by its cord.
9. Never use worn or frayed extension cords.
10. Be aware of flammable or corrosive chemicals and follow your company's procedures for operating electrical equipment in their vicinity.
11. Use ground fault circuit interrupter (GFCI) outlets.
12. Keep clear of energized parts.
13. Keep conductive materials, such as steel wool, metallic cleaning cloths and some chemical solutions, away from sources of electricity.
14. Be aware of lockout/tagout procedures to keep electrical equipment turned off during maintenance and repairs.
15. Never fasten extension cords with staples or hang them from nails or wire; it can damage the cord's insulation.





Working Safely With Flammable Liquids

They're called flammable liquids, but it's not the liquid that you need to worry about—it's the vapor that begins to form as soon as the container is opened. This vapor can explode at the first spark from a tool, a match, simple friction, static electricity or even high temperatures. Most flammable liquids are volatile, that is, they evaporate quickly and reach a concentration in the air that could lead to an explosion.

Flammable vapors are especially dangerous because you can't see them, and often you can't smell them. Solvents, cleaning fluids, acetone, alcohol and fuels are some of the flammable liquids you may use on the job.

Working Safely With Flammable Liquids

- ☑ Control the three potential hazards: temperature, concentration of vapor and ignition sources.
- ☑ Read the material safety data sheet (MSDS) for each liquid you use so you'll know its flash point as well as its upper and lower explosive limits—the range in which vapors are at the right concentration to explode if they're ignited.
- ☑ Follow your employer's flammable liquids safety policy.
- ☑ Always wear the correct, properly fitted personal protective equipment.
- ☑ Ventilate the area to keep vapor concentration down.
- ☑ Know which chemicals, such as oxidizers, increase the fire dangers of flammables.
- ☑ Know the location of the correct fire extinguisher to use in a flammables fire.
- ☑ Never smoke in areas with flammable liquids.
- ☑ Avoid mixing flammables; even small amounts of highly volatile liquids can lower the flash point of the mixture to dangerous levels.
- ☑ Check with your supervisor for instruction on how to dispose of flammable liquids.
- ☑ Store flammable-soaked rags and other waste materials in tightly covered, specially designated containers.
- ☑ Never pour flammable liquids down drains.
- ☑ Keep flammables away from welding, cutting and grinding operations.
- ☑ Be cautious with empty drums that have contained flammable liquids.
- ☑ Never do repair work or welding on an empty flammables drum without getting clearance first.
- ☑ Make sure that areas below where you're working are ventilated or sealed off to prevent the vapors from flowing down into them.
- ☑ Special spark-proof switches and fixtures should be installed in areas where flammable liquids are used.

Storing Flammable Liquids

- ☑ Keep flammable-liquid containers tightly covered, and store away from other chemicals and ignition sources in well-ventilated, temperature-controlled areas.
- ☑ Storage areas for flammables should be equipped with nonsparking electrical systems and heat sources.
- ☑ Store flammables separately from other chemicals, especially reactives such as oxidizers, in well-ventilated, temperature-controlled areas.
- ☑ Make sure flammables are stored in authorized containers and are correctly and clearly labeled for flammability. Liquids with a flash point of 80° F or less must be marked with a red label.
- ☑ Make certain containers are fireproof and have vapor screens and vapor-tight caps.
- ☑ Attach grounding wires to flammable storage containers to prevent static electricity buildup.
- ☑ Before transferring flammable liquids from a drum to a container, be sure to connect the container to the drum with a bonding wire before pouring the liquid, since the friction of pouring can ignite the vapors.

IN CASE OF AN EMERGENCY

Chances are, you'll never have to deal with a fire or explosion caused by flammables, but you should still be prepared. Know your employer's emergency plan, and if a fire breaks out, sound the alarm and evacuate the area immediately.

Save Your Sight

Eye protection is the most important protective gear you can wear. If you're not wearing safety glasses or goggles on the job, you're risking permanent eye damage and blindness. Think about all the work activities you may do each day that can cause eye injury: grinding, sanding, brushing, sawing, drilling, buffing, hammering, cutting, welding and working with chemicals. A speck of dust flying from a power sander, traveling at the speed of a bullet, can severely and permanently injure your eye.

SAFETY GLASSES

If your job involves hazards from dust, flying objects or particles that may strike you from in front, you should be using safety glasses. They may look similar to normal street-wear glasses, but they're made of much stronger lenses. The lenses of safety glasses are specifically designed to be impact resistant, and the frames are built to keep the lenses from being pushed into your eyes. You can't get this kind of protection from regular prescription glasses.



Types of Safety Glasses

- ▶ All safety glasses must meet the American National Standards Institute (ANSI) standards for strength and heat resistance. Look for the "ANSI Z87" imprint on the frames of your safety glasses.
- ▶ Some safety glasses have side shields to provide protection for the sides of your eyes.
- ▶ Eye-cup side shields curve around your eye area providing protection for the front, side, top and bottom of your eyes.
- ▶ For high-impact protection, choose lenses of plastic or polycarbonate, the most impact-resistant material used.
- ▶ Glass lenses protect against scratches from dust and grit better than other lenses.

SAFETY GOGGLES



Safety goggles offer effective protection from impact, flying particles coming from many different directions, fumes, vapors, dust and chemical splashes. For this reason, safety goggles should be worn when grinding, chipping, riveting and working with wood, chemicals and fumes.

Safety goggles are surrounded by a shield that fits snugly on your face all the way around your eyes. Because of their snug fit, the shields of standard safety goggles have ventilation holes to keep them from fogging up. Some goggles have hooded or indirect ventilation openings to keep out thick hazardous dust, chemical splashes or molten materials. There are many special types of safety goggles designed for specific jobs. Ask your supervisor which type of goggles your job requires.

Types of Safety Goggles

- ▶ wire-screen goggles with wire-mesh lenses instead of glass or plastic
- ▶ respirator goggles with a high nose bridge so they can fit with a half-mask respirator
- ▶ rubber-frame goggles to protect from fast-moving, fine dust
- ▶ visor goggles to shade from overhead lights and protect from falling particles
- ▶ splash goggles with no ventilation, to protect against chemical splashes and hazardous mists and dusts
- ▶ tinted goggles to reduce glare from bright lights or molten materials

CARE AND USE OF YOUR SAFETY EYEWEAR

- ▶ Use the right eyewear for your job.
- ▶ If you find your eye protection uncomfortable, try a different size or style.
- ▶ Remember to regularly inspect your eye protection equipment for wear and damage, such as scratches and cracks.
- ▶ Never wear worn, damaged or otherwise defective equipment.
- ▶ Keep your equipment clean according to the manufacturer's instructions and store it in a clean, dry place.
- ▶ You may need to wear a headband or strap with safety glasses to keep them from falling off.
- ▶ If you wear prescription glasses, use special goggles to fit over them, or get safety glasses with your prescription.
- ▶ Make sure your goggles fit snugly but comfortably around the bridge of your nose, cheeks, temples and forehead.
- ▶ If you wear contact lenses, let your supervisor know. Your company may have a special policy.
- ▶ Make sure eye protection equipment conforms to the American National Standards Institute (ANSI) standards.

Respirator Fit and Maintenance

Your respiratory safety on the job depends on you wearing a properly functioning and fitting respirator. Tell your supervisor if your respirator interferes with your ability to see, hear or be heard properly, if it restricts movement so that you can't safely do your job, or if it has any damaged or worn parts.

Checking the Fit

- ▶ Whether you use a full-face respirator or one that covers only your nose and mouth, choose a respirator that's the right size for you and feels comfortable.
- ▶ Don't try to make a respirator more comfortable or better-fitting by altering it in any way or repairing it with parts from another respirator.
- ▶ Follow instructions for putting it on, adjusting the straps if necessary.
- ▶ When a respirator fits properly, the soft, pliable edges of the mask will mold to form a seal to your face, preventing contaminated air from entering.
- ▶ Adjust disposable fiber masks by pinching the metal nose strip to fit around your nose.
- ▶ Make sure no hair sticks out from the edges of your face mask. Beards, mustaches and long sideburns can interfere with the seal.



Testing the Seal

Perform these tests each time you use your respirator. Enter your work area only if your respirator passes the tests. Some employers provide a test atmosphere of banana oil or irritating smoke that you'll detect if your mask is leaking.

Positive Pressure Test

Cover the exhalation valve so that air can't escape through it; then exhale gently. The mask will bulge and you should feel increased air pressure until you inhale or uncover the valve. This means that no air is escaping the mask.

Negative Pressure Test

Cover the air intake ports of the respirator with your palms and inhale. Not only should it be difficult to inhale, but the soft parts of the respirator should collapse inward toward your face and remain that way as long as you're inhaling. This means that no air is getting into the mask from the edges. If you feel air coming in, and the mask regains its shape, there's a leak that must be corrected before you use the respirator.

RESPIRATOR MAINTENANCE

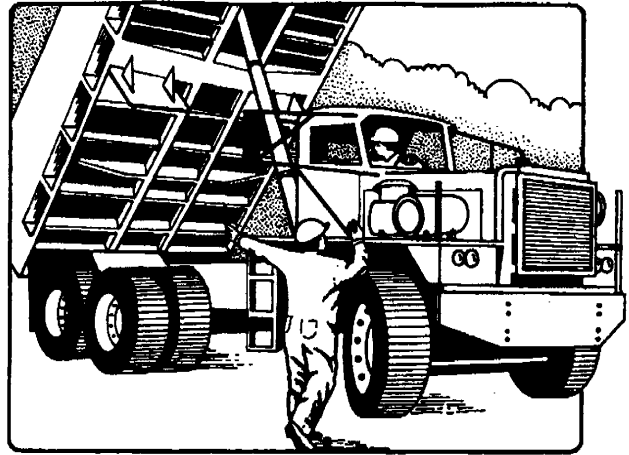
- ▶ Test your respirator's fit regularly.
- ▶ Check filters, cartridges or canisters before each use.
- ▶ Regularly check for cracks, dents, holes, hardening and broken or worn straps or buckles.
- ▶ Replace elastic straps that have lost their stretch.
- ▶ Replace your respirator if the material around the edges has become hard and brittle.
- ▶ Replace cartridges or canisters, valves and hoses according to the manufacturer's guidelines.
- ▶ Avoid changing parts from one model to another.
- ▶ Use only approved parts.
- ▶ Make sure cartridges are threaded correctly into place.
- ▶ Do pressure tests after replacing cartridges or filters.
- ▶ Keep valves clean and functioning properly.
- ▶ Replace dry or cracked valves.
- ▶ Clean your respirator after each use.
- ▶ Wash in mild, soapy water and scrub with a soft brush.
- ▶ If sanitizing, leave your respirator in the solution for at least two minutes and rinse thoroughly.
- ▶ Never use solvents or harsh cleaning agents on rubber or plastic parts.
- ▶ Replace your disposable respirator when it becomes clogged or breathing becomes difficult.
- ▶ Store your respirator in a plastic bag away from sunlight and chemicals.
- ▶ Avoid placing objects on top of your respirator.

Working Around and Operating Heavy Equipment Safely

Heavy equipment is both powerful and dangerous, both for the operator and for those who work around it. It's important that you know the safety precautions to take when working with and around heavy equipment such as dump trucks, front-end loaders, cranes, tractors and cement trucks.

SAFETY RULES FOR HEAVY EQUIPMENT OPERATORS

- When you operate heavy equipment, always check the brakes, steering and other controls before starting the engine.
- Before you start up, make sure no one is near your equipment. The safest way to do this is to walk around your vehicle.
- Always wear the right personal protective equipment such as safety glasses and a hard hat when operating heavy equipment.
- Always wear your safety belt.
- When you park your machine, lower buckets, shovels or dippers, set the parking brake and shut off the engine.
- Resist the temptation to jump off of your machine; instead, use the handholds, rails and steps. Be sure to keep these areas clean and free from grease.
- Always stop the engine before lubricating or working on a machine. And make sure all safety guards are in place.
- Avoid backing up heavy equipment unless it's absolutely necessary.
- Check the surrounding area for obstacles before beginning an operation.
- Keep other vehicles, materials, equipment and people out of areas where heavy equipment is operating.



- Make sure your mirrors are angled to reduce blind spots.
- Check your reverse alarm before operation.
- If you're unable to see behind your machine, use a person on the ground as a "spotter" to help direct you and look for obstacles.
- Only use equipment you're trained to use.
- Be familiar with the limitations of your equipment.
- Never assume your path is clear if you can't see it.

SAFETY RULES FOR WORKING AROUND HEAVY EQUIPMENT

- Keep clear of moving equipment.
- Never assume the operator knows where you are or where you're going.
- Keep an eye out for moving equipment at all times.
- Watch out for and stay clear of pinch points, earth-moving equipment and cranes.
- If you must walk around a piece of heavy equipment, alert the operator to stop the machine before going by.
- Always stay out from under loads on cranes or hoists—even if it means taking the long way around.
- Avoid walking behind a piece of equipment that's backing up. You could trip and fall.
- Never walk beside moving equipment or ride on its running board or drawbar in case it slides or turns or the load shifts.
- Never ride on top of a truck loaded with masonry blocks or other materials that could shift and injure you.
- If you're working on portable staging, scaffolds or platforms, get off while the machine is being moved.

Working Near Overhead Power Lines

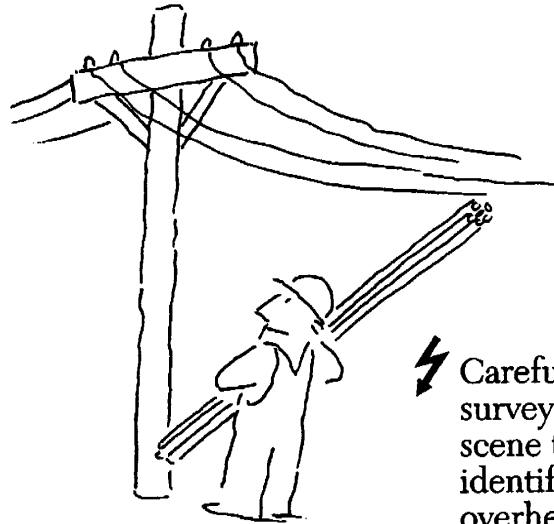
A worker who climbs onto a tall truck bed to unfasten a load can be electrocuted instantly if he or she contacts a nearby power line. And a worker who positions a crane or dump truck beneath a power line risks electrocution when the boom or bed is raised.

Accidents involving overhead power lines are serious and usually result in death. They're typically caused by carelessness and can be prevented.

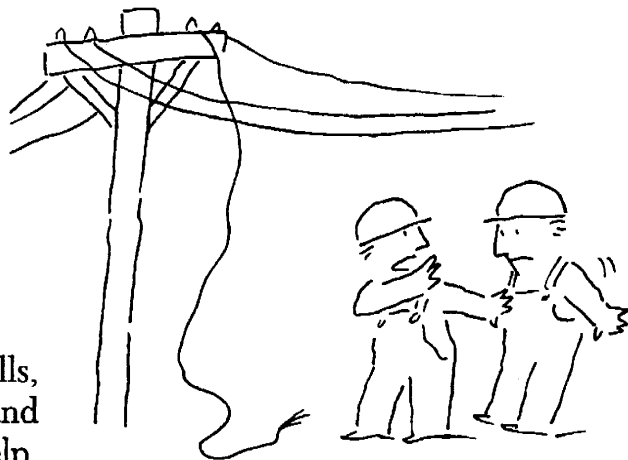
IF YOU WORK BENEATH POWER LINES...

- ⚡ Estimate clearances between power lines and the highest point of your equipment.
- ⚡ Keep yourself and your equipment at least 10 feet from power lines.
- ⚡ Have the power company install protective barriers or de-energize the lines.
- ⚡ Make sure workers on the ground don't touch vehicles or equipment.
- ⚡ Ground all vehicles and other equipment near the power lines, and make sure workers aren't near the grounding location.
- ⚡ Be extra cautious when handling long conductive materials, such as pipes and metal rods.
- ⚡ Use ladders with nonconductive rails.
- ⚡ Wear protective equipment, such as nonconductive headgear and rubber sleeves, gloves and boots.
- ⚡ If a live power line hits your vehicle, stay inside; if there's a fire, jump out—with feet together—as far from the vehicle as you can. Avoid touching the vehicle and the ground at the same time.

⚡ If a live power line falls, stay away from it and call for help.



⚡ Carefully survey the scene to identify any overhead hazards.





Working Safely With Compressed Gases

Any material that's under pressure can be dangerous if it's not handled properly. If the material is a compressed gas, it may be flammable, explosive, reactive, toxic or a combination of these. Because of the hazards of compressed gases, it's very important to know what you're working with, what its hazardous properties are and how to safely handle its container—the compressed-gas cylinder.

Tips for Compressed Gas Safety

- ❑ Before handling any compressed-gas cylinder, identify the type of gas it houses by its identification and hazard labels, not its color. Different manufacturers use different color codes.
- ❑ Check the cylinder's label for hazards, and read the material safety data sheet (MSDS) for instructions on protective equipment and handling.
- ❑ Look for the maximum approved pressure label and make sure a current test date is indicated. If the cylinder is missing this information, it should not be handled.
- ❑ Only trained personnel should unload compressed-gas cylinders.
- ❑ Inspect cylinders for damage or leaks.
- ❑ Move defective cylinders to an isolated storage area; a ruptured cylinder can become a rocket with the force to blast through a concrete wall.
- ❑ When moving cylinders, use special cylinder hand trucks, keeping the cylinder lashed to the cradle and standing as upright as possible.
- ❑ Avoid dropping, banging or rolling cylinders.
- ❑ Keep compressed-gas cylinders away from fire, heat and sparks.
- ❑ When using a cylinder, open the valve slowly, with the cylinder pointed away from people.
- ❑ Make sure the hoses and connections are clean and in good condition each time you use the cylinder.
- ❑ When a cylinder is not in use, screw down the protective metal cap to the last thread.
- ❑ Label empty cylinders with "MT" and keep them separate from full ones.
- ❑ Store compressed-gas cylinders upright, secured with a chain or cable, in a safe, well-ventilated, fire-resistant area with a controlled temperature below 125° F (51.7° C).
- ❑ Keep cylinders out of direct sunlight and away from heat sources, combustible materials and electrical wiring.
- ❑ Group cylinders with others housing the same contents.
- ❑ Rotate stock, using older cylinders first.
- ❑ Avoid using cylinders in confined spaces.
- ❑ Keep oxygen cylinders at least 20 feet away from flammable-gas containers, combustible materials, oil and grease.

Compressed Gases That Need Special Handling

Acetylene and hydrogen: Both of these gases are highly explosive and must be handled with extreme caution. Hydrogen escapes easily from threaded fittings that aren't completely tight, and such leaks can ignite spontaneously from the friction of the escaping gas. Hydrogen has no odor to warn of a leak.

Oxygen: While not flammable itself, oxygen increases the tendency of things around it to burn or explode. Keep oxygen cylinders away from combustible or flammable materials and fire hazards, including grease and oil on your clothes, hands and work area. Oxygen should not be used in place of compressed air.

Chlorine and fluorine: These gases are highly corrosive and irritating. When mixed with acetylene and exposed to light, they may explode. Chlorine will form corrosive hydrochloric acid in water, eating into iron or steel equipment. The proper respirator and other protective equipment should be available in case of a leak.

Ammonia: This is a highly corrosive gas. When using it, make sure you have quick access to the proper respirator and other protective equipment.



Working Safely With Paint

We don't usually think of paint as a hazardous chemical—after all, millions of people use paint in all sorts of situations without wearing any special protective equipment. But understanding the health hazards of prolonged or repeated exposure to paint substances can help you understand why OSHA requires you to protect yourself when using them.

Health Hazards of Paint

Paint contains pigments, solvents, resins and other ingredients to give it color, texture, spreadability and durability. Many of these ingredients are hazardous to your health; among them are solvents, such as mineral spirits, naphtha and turpentine, that evaporate quickly from paint exposed to the air. Even short-term exposure to these chemicals can cause dizziness, eye irritation, nausea, coughing and other symptoms. In addition, paints containing polyisocyanate hardeners can cause shortness of breath, chills and fever. Long-term exposure to paint ingredients, even when no short-term effects are noticed, can damage the kidneys, liver, blood or nervous system. Some even cause cancer and birth defects in laboratory animals.

You may work with paints for a long time with no ill effects. But you can suddenly develop rashes, hives, swelling or scaling of the skin or coughing and shortness of breath, which often lead to permanent lung damage or severe respiratory stress. This is sensitization, an allergic reaction to one or more of the ingredients in paint. Once you become sensitized, it's possible you may never be able to work with the sensitizing substance again. To prevent sensitization, you must avoid contact with the paint in the first place by using the correct personal protective equipment.

Other Hazards

The volatile solvents in paint are flammable. Painting in an unventilated area near an ignition source—such as a cigarette, spark or static electricity—can be very dangerous. Paint containers exposed to high heat may explode. And some paints contain chemicals that may react violently with other substances.

Educate Yourself

Always read the labels of the materials you're going to use before you begin painting. Use the labels and material safety data sheet (MSDS) as a guide to the hazards the paint contains, the type of protective equipment to use and whether the paint may ignite easily. The MSDS will also tell you how to contain and clean up a paint spill and what you can do in case of overexposure to paint.

Protect Yourself

- ◆ You can prevent exposure to harmful paint chemicals by wearing the appropriate personal protective equipment—a respirator designed for painting, coveralls, chemical-resistant gloves and eye protection.
- ◆ Some safety glasses made for painting have special layered peel-off lenses you can remove as they get covered with paint.
- ◆ Paint only in well-ventilated areas if possible.
- ◆ Make sure to use an appropriate respirator when spraying polyurethane paints and other paints in enclosed areas.
- ◆ Change your respirator's cartridges often, as specified by the manufacturer's guidelines.

Clean Up for Safety

- ◆ Keep paint and other paint-related containers tightly sealed and properly labeled when not in use.
- ◆ Store paints at the proper temperature to avoid explosion.
- ◆ Dispose of empty cans and paint- or solvent-soaked rags in airtight containers to avoid spontaneous combustion.
- ◆ Use soap, water and a washcloth to clean your hands; solvents and paint thinners can cause irritation, infection and severe drying of the skin, as well as toxic effects.
- ◆ Remove clothing soaked in solvents and properly clean it.