

# SAFETY & HEALTH



**PARLAY  
INTERNATIONAL**



**KOPY KIT®**  
REPRODUCIBLE  
RESOURCES

#1630

# Tips and Tricks

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## Suggested Techniques for using your Digital KOPY KIT®

### Help -

Complete online instructions on the general use of this document browser are available anytime by selecting Help from the menu at the top of the screen (if you are a Windows user) or Command +/ (if you are a Macintosh user).

### Copy and Paste -

#### Selecting Text

From the Tools menu click on Select Text. Highlight the desired text with your mouse. From the Edit menu choose Copy. The text is now ready for you to paste into your new document. **For best results, select only small portions of text at a time by highlighting the text in sections (Title, Body, Selected Paragraphs, etc.), using multiple copy/paste operations.** Due to the variations of graphics, text, fonts and software, selecting the entire text will result in unpredictable formatting when the selection is pasted into your new document.

#### Selecting Graphics

From the Tools menu click on Select Graphics. Highlight the desired image with your mouse. **For best results, select graphics individually.** From the Edit menu choose Copy. The image is now ready for you to paste into your new document. You may need to edit the image in a graphic program to remove text artifacts.

#### Selecting The Entire Page

From the Tools menu click on Select Graphics. Then from the Edit menu click on Select All. From the Edit menu choose Copy. The selection is now in your clipboard in the form of a large graphic image, ready for you to paste into your new document. **Please note, that although text can be pasted into your document using this technique, it is not editable, since it is no longer text, but is an image instead. This method is only recommended in cases where you do not need to modify your Kopy Kit ® page.**

### Sizing the Window View -

#### Thumbnail View (Default)

The default view allows you to see the desired KOPY KIT ® page and its thumbnail image. Click on a thumbnail to jump to the KOPY KIT ® page it represents.

#### The Bookmark View

You can also view a list of page titles by selecting the bookmark view. To do this, from the View menu click on Bookmarks and Page. The page titles will be listed on the left side of the screen. Click on a bookmark to jump to the KOPY KIT ® page it represents. You can resize the bookmark window by clicking on the divider and dragging it left or right.

# Attitude Is Everything

Having a safe attitude is more than just following the rules. It's that extra something that means you care about safety. You show you keep safety in mind when you...

**Focus** on the job you're doing, even when you'd rather be doing something else.

**Take time** to do the job right, even if it means getting out extra safety equipment and going over procedures.

**Take responsibility** for safety, even when it's "not my job."

**Do the right thing,** even when others want you to take shortcuts or fool around.

**Know the risks** of unsafe tasks, and avoid them whenever you can, even when it means taking more time to get the job done safely.



# Safety Means No Fooling Around

**WARNING** Horseplay on the job leads to inattention, carelessness, unsafe practices and recklessness. It can cause anger and hurt feelings.

## ***Why fooling around is a mistake:***

- It takes your mind off your work.
- People may relax safety standards in the interest of "fun."
- Your personal safety can be endangered by a practical joke.
- Inappropriate jokes or actions can hurt someone's feelings or make them angry.



- People become nervous and inattentive if they fear being the next victim.
- Equipment and tools are often used improperly or recklessly.

***Laughter is good for everyone.  
But horsing around on the job  
is no laughing matter.***

# Communication Tips For a Diverse Workforce

If you look around at your coworkers, you may notice that some things have changed over the years. Studies predict that by the year 2000, over half the U.S. labor force will be minorities. At first you may feel uncomfortable around someone who seems different than you. Here are some tips to keep the lines of communication open:

Remember that everyone wants to be treated as an individual and judged on their own merit.



Try not to think in terms of "us" and "them." This will lead to tension and resentment.



If you are evaluating a coworker's job performance, make sure you focus on what they do, not who they are.



*Remember that this is a chance for you to learn and expand your experience!*

# Accidents Cost Everyone

On-the-job accidents and injuries affect everyone in the company. Just looking at dollars and cents, here's what accidents can mean for the company...

- Lower company productivity;
- Higher insurance rates;
- Lower profits, fewer bonuses;
- Layoffs;
- Higher medical expenses;
- Factory closures.



But that's not the whole story.

Accidents often take a personal toll, causing...

- Stress on the job;
- Loss of hopes and dreams as a result of disabling accidents;
- Chronic pain and disability;
- Death of a loved one.

You do your part to keep the high cost of accidents down when you...

- Take extra time and care;
- Use the right equipment;
- Follow safe work practices;
- Encourage others to practice safety.

**Accidents cost money, lives and careers.  
Everyone benefits when we keep safety in mind.**



**ATTITUDE & AWARENESS**

# Focus on Leadership Skills

## Leaders are...

### ...Coaches

- They know what the goal is.
- They inspire the team.
- They are enthusiastic, fair, honest and supportive.
- They show interest in each member of the team.
- They help team members work out differences.



### ...Decision makers

- They take time to think about a problem.
- They clearly state the alternatives.
- They get input from others.
- They are willing to take risks.
- They learn from their mistakes.



### ...Communicators

- They say, write and show what they mean.
- They listen with a positive attitude and full attention.
- They use "I" statements instead of "you" statements.



### ...Assertive

- They state their feelings, expectations and needs.



## Making "I" statements

"I" statements are the best way to communicate your feelings, needs and expectations without putting the listener on the defensive, the way "you" statements can. Here are some examples:

### "You" statements:

*You always interrupt.  
You're late again!*

### "I" statements:

*I feel angry and frustrated when you interrupt me.  
I expect you to be on time.*

# What's Your Safety Score?

Take this quiz to rate your on-the-job safety. Circle the answer that applies to you.

- |   |         |           |       |
|---|---------|-----------|-------|
| 1. I save "horseplay" for after-hours.                              | Usually | Sometimes | Never |
| 2. I read labels before using chemicals.                            | Usually | Sometimes | Never |
| 3. I use the right equipment, even when it takes longer.            | Usually | Sometimes | Never |
| 4. I clean up spills right away.                                    | Usually | Sometimes | Never |
| 5. I ask questions when I'm not sure of something                   | Usually | Sometimes | Never |
| 6. I come to work sober and well-rested.                            | Usually | Sometimes | Never |
| 7. I take care of dangerous conditions or report them right away.   | Usually | Sometimes | Never |
| 8. I take all safety precautions before beginning.                  | Usually | Sometimes | Never |
| 9. I always unplug equipment before cleaning or working on it.      | Usually | Sometimes | Never |
| 10. I stay focused on the task at hand.                             | Usually | Sometimes | Never |
| 11. I take a "time out" when I'm angry.                             | Usually | Sometimes | Never |
| 12. I keep my work area neat and organized.                         | Usually | Sometimes | Never |
| 13. I keep my equipment in good repair.                             | Usually | Sometimes | Never |
| 14. I know what to do in an emergency.                              | Usually | Sometimes | Never |
| 15. I'm careful to put out matches, cigarettes or fires completely. | Usually | Sometimes | Never |

**Scoring:** Give yourself 3 points for each "USUALLY," 2 points for each "SOMETIMES" and 1 for each "NEVER."

**Your Score: Over 40:** Excellent safety attitude and practices.

**30-40:** Good. But why not change some of those "SOMETIMES" to "USUALLY"?

**Under 30:** You're taking too many chances with your safety. Why not pick three dangerous habits to change right away?

# Assess Your Stress

Not all stress is bad. But too much stress can hurt your mental and physical well-being. Use this checklist to watch for excess stress in your life:

- |  |  |
|--|--|
| <input type="checkbox"/> Fatigue                             | <input type="checkbox"/> Feeling overwhelmed or out of control |
| <input type="checkbox"/> Sleeplessness                       | <input type="checkbox"/> Poor concentration                    |
| <input type="checkbox"/> Irritability, anxiety or depression | <input type="checkbox"/> Frequent crying                       |
| <input type="checkbox"/> Change in appetite                  | <input type="checkbox"/> Muscle spasms                         |
| <input type="checkbox"/> Headache, backache or chest pain    | <input type="checkbox"/> Constipation or diarrhea              |
| <input type="checkbox"/> Lasting negative attitude           | <input type="checkbox"/> Shortness of breath                   |
| <input type="checkbox"/> Numbness                            | <input type="checkbox"/> Difficulty controlling your temper    |

If you're experiencing any of these symptoms, try some simple stress reduction techniques, such as deep breathing, relaxation or exercise.

If you checked many boxes, you may need more than these techniques. Consider asking your healthcare provider about counseling or other ways to cope with the stress in your life.

# Managing Work STRESS

*Stress from trouble, worry or changes in family or work life may affect your job performance. The following steps can help you cope with periods of high stress:*

**Step #1** Make a list of stressful events or activities:

- new job
- trouble at home
- not enough time to get work done



**Step #2** Identify the ways you usually deal with stress:

- watch T.V.
- take a walk
- eat, smoke or drink ✓

**Step #3**

Look over your list and put a check by responses that don't work or are bad for you.

**Step #4**

Brainstorm new responses—try to come up with three for each stress. For instance: If there's not enough time to get work done, try these tactics:

- Get to work earlier.
- List tasks in order of importance and work on the high-priority items first.
- Figure out if time is being wasted on unimportant or unnecessary tasks.

BRAINSTORM...  
ideas... ideas...



**Some stress can't be avoided. Learn coping techniques...**

- Take five deep breaths.
- Exercise more frequently.
- Learn relaxation or meditation techniques.
- Avoid unhealthy responses, like alcohol, drugs, cigarettes, and overeating.

# WHAT IS A Confined Space?

**Confined spaces may contain dangers that are invisible, fast working, continuously changing and difficult to escape. Dangers may include:**

-  lack of oxygen
-  fire or explosion
-  toxic poisoning
-  other physical hazards such as heat, falls, noise and injury from machinery

**Confined spaces are areas that:**

-  have restricted entry or exit
-  can be hard to get out of
-  are not designed for human occupancy

**Some examples of confined spaces are:**

-  storage tanks and bins
-  hoppers
-  vaults
-  ventilation shafts
-  silos

**Even empty, well-cleaned spaces can be risky. Get to know the dangers of confined spaces so that you can work safely.**

# Oxygen Deficiency or Enrichment

**Oxygen deficiency or enrichment are two of the dangers of confined spaces.**

Oxygen deficiency can be caused by the following:

- ***Fire or Explosion***

Oxygen is used up as a fire burns.

- ***Displacement***

Oxygen can be displaced by other gases such as argon, carbon dioxide or nitrogen.

- ***Rust***

When metals rust it takes oxygen out of the air.

**Oxygen enrichment –or too much oxygen in the air– is dangerous because it can be a fire hazard.**

- ***Fires start much more easily in air with more than 23.5 percent oxygen.***

- ***Oil in the presence of pure oxygen will self-ignite.***

To avoid these dangers, make sure that the atmosphere is monitored during any confined space entry.

# The Confined Space Entry Permit

Confined spaces can be very dangerous because of what they may contain, their shape and how difficult it is to get out of them.

Some confined spaces are so dangerous that only specially trained people are allowed to enter them. Facilities with such spaces must create a Permit Space Entry Program for these types of confined spaces.

If a confined space is identified as a permit-required space, a written Entry Permit is required before a worker can go into the space. This permit will include:

- ✓ The **space** to be entered.
- ✓ The **reason** for entering the space.
- ✓ The **date** of the entry.
- ✓ The **duration** of the entry.
- ✓ **Acceptable** entry **conditions**.
- ✓ The **hazards** of the space and ways to **control** or **remove** them.
- ✓ The **names of workers** entering the

space, the **attendants** and **entry supervisors**.

- ✓ Information about **atmospheric testing** done on the space.
- ✓ Appropriate **communication procedures**.
- ✓ Information about **rescue** and **emergency services**.
- ✓ Information about necessary **equipment** when entering the space.
- ✓ Whether **additional permits**, such as for hot work, are needed for the work in the space.

If work must be done in the space, an entry supervisor must fill out and sign the permit before any entry activity can begin.

If problems happen during the work in the space, they must be recorded on the permit. Permits must be kept on file for at least one year.

Warning signs must be posted at entrances to all permit-required spaces to let you know a written permit is needed before entry.

# **Explosive or Combustible Atmosphere**

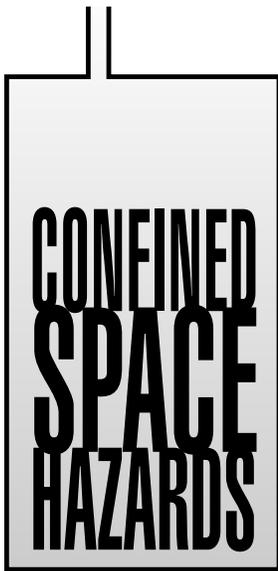
***Fires and explosions can be caused in confined spaces by many different things, including:***

- chemicals
- petroleum products
- solvents
- oxygen enrichment

***Vapors or gases that build up in a confined space can be ignited by:***

- sparks from machinery
- torch cutting
- welding
- static electricity
- smoking
- friction

***Because of the nature of confined spaces, there is increased danger of fire or explosion making escape and rescue efforts more difficult.***



# Toxic Contaminants

Toxic substances are another danger in confined space entry and work. Many times, a toxic substance can't be seen or smelled—but they can still be there. Two ways that toxic materials can hurt you are:

→ ***Irritation***

The substance may irritate your respiratory system (throat, lungs) or your nervous system. If this irritation is extreme, it can be deadly.

→ ***Chemical Asphyxiation***

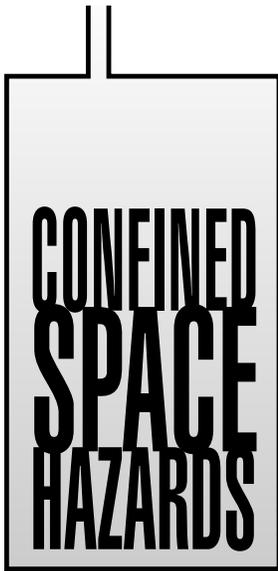
Some toxics can decrease the amount of oxygen you get or get in your lungs, keeping them from working properly.

Some common toxics that are especially dangerous in confined spaces:

→ ***Carbon monoxide***    → ***Hydrogen sulfide***    → ***Sulfur dioxide***

Because of these dangers, each time you enter a confined space, make sure you know

- ***hazardous materials that could be present***
- ***hazardous materials previously contained in the space***
- ***health effects from exposure***
- ***what levels are acceptable for entry***
- ***what personal protective equipment is needed***



# Physical Conditions

Physical conditions in confined spaces can create these hazards:

## ▶ Temperature

Heat can increase quickly in a confined space and cause exhaustion or heat stroke.

## ▶ Noise

Noise may reverberate and cause hearing damage, or high noise levels may keep you from hearing important warnings or instructions.

## ▶ Pipes and Valves

Must be shut off, locked out, blanked and tagged because entering gases or liquids can cause injury.

## ▶ Awkward positions

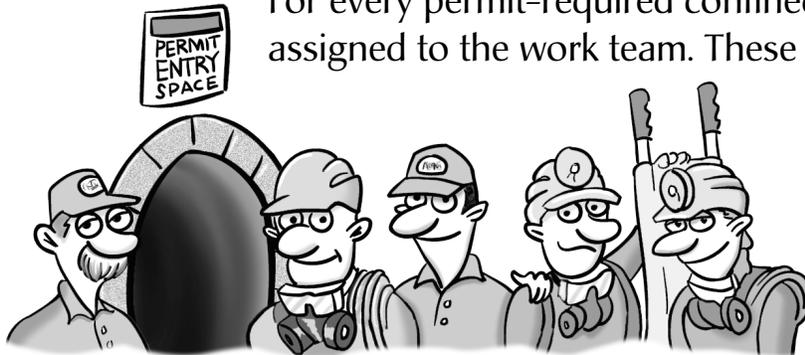
Working on platforms, sloping floors or on ladders can lead to entrapment or falls.

## ▶ Electrical equipment

Live wires and the equipment itself can be dangerous.

## Confined Space Personnel Roles and Responsibilities:

# Entrant



For every permit-required confined space entry there are roles assigned to the work team. These include:

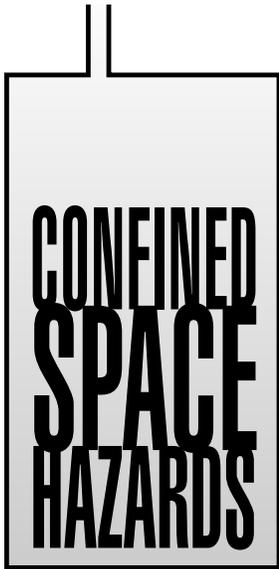
- ✓ Entrant
- ✓ Attendant
- ✓ Supervisor
- ✓ Rescue Team

*The people in each of these roles must be aware of their duties and be able to perform them.*

**The Entrant:** Entrants are the people who go into the space to do the work. The entrant is responsible for:

- ✓ Knowing the hazards of the space.
- ✓ Knowing how to properly use equipment for entry and work in the space.
- ✓ Performing assigned work in a safe, efficient manner.
- ✓ Communicating with the attendant and providing the necessary information for the attendant to perform their job.
- ✓ Alert attendant to any danger or exposure hazards.
- ✓ Evacuate space when told to do so by attendant or supervisor, or in case of danger.





# Engulfment

Because of the physical configuration of confined spaces, engulfment is a hazard. Engulfment is when a person is suffocated or crushed by liquid or “flowing” solid material.

Materials that present an engulfment hazard include:

- sand
- cement
- powdered talc
- grain

Entry to a confined space is not allowed when engulfment potential exists.

# Testing & Monitoring the Atmosphere of a Confined Space

**Every person working in a permit-required confined space must be familiar with basic air monitoring.**

**Never rely on your own senses to detect atmospheric hazards because**

- Many atmospheric hazards can't be smelled or seen.
- Some hazards can't be detected until they are already harmful.
- Some gases de-sensitize the nose after only a brief exposure.

The types of monitoring will be based on the hazards present.

The three types of potential hazards are:

- **Oxygen deficiency or enrichment.**
- **Fire or explosion hazards.**
- **Toxic contaminants.**

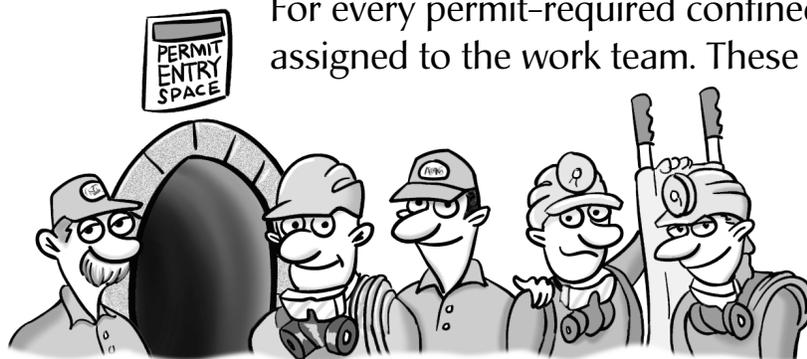
The spaces must be monitored before entry. Then, depending on the hazards and the type of work being performed, testing will be conducted either continuously or periodically.

**Continuous monitoring is required if:**

- Ventilation is necessary to control atmospheric hazards.
- Welding or other hot work is necessary.
- Chemicals with airborne hazards are being used in the space for cleaning or other purposes.

## Confined Space Personnel Roles and Responsibilities:

# Attendant



For every permit-required confined space entry there are roles assigned to the work team. These include:

- ✓ Entrant
- ✓ Attendant
- ✓ Supervisor
- ✓ Rescue Team

*The people in each of these roles must be aware of their duties and be able to perform them.*

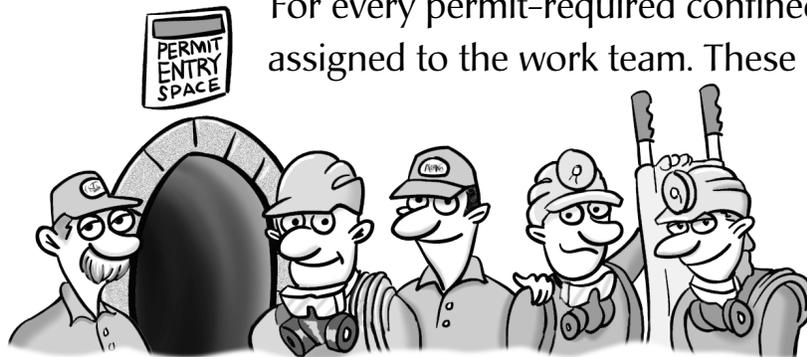
**The Attendant's function is to observe, assist, protect and provide for rescue:**

- ✓ Monitor conditions in and around the confined space.
- ✓ Know the hazard of the space.
- ✓ Know emergency procedures.
- ✓ Be able to recognize signs of intoxicification.
- ✓ Assist the Entrant as required.
- ✓ Prevent unauthorized people from entering the space.
- ✓ Contact emergency and rescue crews as needed.



## Confined Space Personnel Roles and Responsibilities:

# Supervisor



For every permit-required confined space entry there are roles assigned to the work team. These include:

- ✓ Entrant
- ✓ Attendant
- ✓ Supervisor
- ✓ Rescue Team

*The people in each of these roles must be aware of their duties and be able to perform them.*

## The Supervisor is responsible for:

- ✓ Planning for permit-space entry.
- ✓ Knowing the hazards of the space.
- ✓ Deciding on all control measures, such as lockout/tagout, isolation and ventilation.
- ✓ Arranging for rescue services.
- ✓ Removing unauthorized individuals.
- ✓ Authorizing the beginning and end of the permit-space entry.



# Confined Space Atmospheric Controls

The main hazard of permit-required confined spaces is atmospheric dangers. Because of this, atmospheric control measures are necessary to protect the entrants. These controls will be chosen based on the hazards present in the space and the type of work being done in the space.

## ***Inerting***

One atmospheric control which is used is called “inerting.” Inerting helps control the potential for explosion or fire by displacing fuel and oxygen with non-flammable gas. Common inerting agents are nitrogen, argon and carbon dioxide.

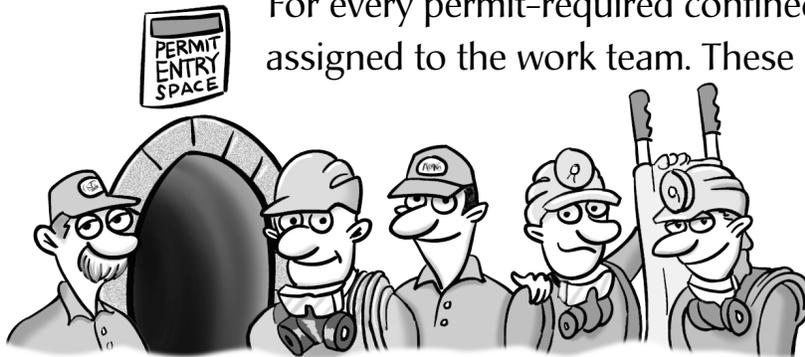
## ***Purging or Ventilating***

While inerting agents are useful for preventing fire or explosion, they are all asphyxiants and are colorless and odorless. This means that they can keep you from breathing properly—even to the point of death—and that you can’t detect them on your own until it is too late. Because of this, either “purging” or “ventilation” must follow inerting to return the atmosphere to breathing quality. Purging means adding breathing-quality air to the space. Ventilating is similar to purging in that breathing-quality air is added to the space but contaminated air is also removed.

Atmospheric controls are individual to the space being worked in and are always included in preparation for entry.

## Confined Space Personnel Roles and Responsibilities:

# Rescue Team



For every permit-required confined space entry there are roles assigned to the work team. These include:

- ✓ Entrant
- ✓ Attendant
- ✓ Supervisor
- ✓ Rescue Team

*The people in each of these roles must be aware of their duties and be able to perform them.*

## The Rescue Team must be:

- ✓ Trained to the same level as Entrants.
- ✓ Trained and able to use any necessary rescue equipment.
- ✓ Trained and able to use rescue techniques for the permit space.
- ✓ Able to understand the information given to the entrant(s).
- ✓ Trained and able to perform first aid and CPR.  
At least one member of the rescue team must have current certification.



# The Fire Triangle

Fire needs three ingredients: fuel, heat and oxygen. When a fuel—such as wood or flammable gas—is heated by spark or other source of heat, it combines rapidly with oxygen and bursts into flame. For a fire to start, all three of these ingredients must be present. A fire is extinguished by removing its fuel, heat or oxygen.

## **Starve It—Remove Fuel**

A fire's fuel might be paper, wood, oil, solvents or gas. Removing the fuel from a fire can be dangerous, but there are exceptions. For example, you can extinguish burning gas that flows from a pipe by turning off the gas valve.

## **Cool It—Remove Heat**

Wood, paper and cloth fires are best cooled with water, but other types of fires require special chemicals to reduce heat and flame.

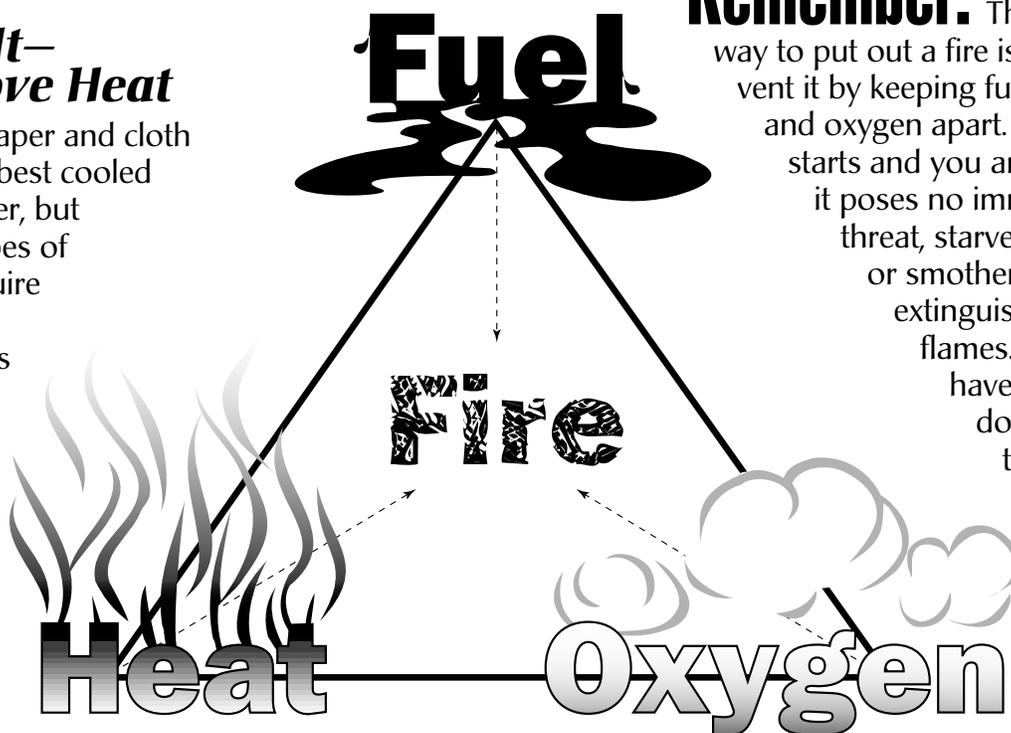
Extinguishers are clearly marked according to the type of fires they can put out.

Never use water on grease, electrical or flammable liquid fires.

## **Smother It—Remove Oxygen**

In order for a fire to burn, it normally needs air that's at least 15 percent oxygen. Covering a pan of flaming food or closing an oven door cuts off the oxygen supply and smothers the flames. Some fire extinguishers use chemicals, powders or liquefied gases to blanket a fire and remove its oxygen supply.

**Remember:** The best way to put out a fire is to prevent it by keeping fuel, heat and oxygen apart. If a fire starts and you are certain it poses no immediate threat, starve it, cool it or smother it to extinguish the flames. If you have any doubt about the seriousness of a fire, don't fight it—get out and report it.

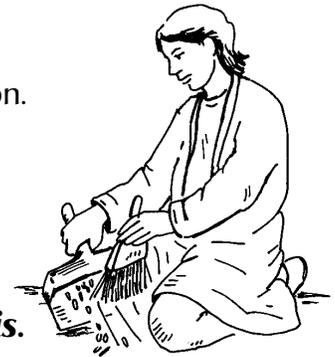


# A Guide to Worksite Fire Safety

*Help prevent fires at your worksite by following these guidelines:*

## **ALWAYS...**

- Keep equipment and machinery clean and in good operating condition.
- Make sure that all electrical equipment is protected.
- Store flammable or combustible materials in the right containers away from heat sources.



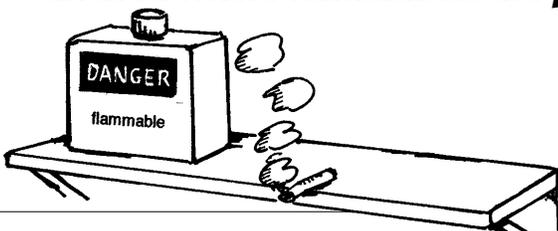
## **• Keep work areas clean and free of debris.**



- Dispose of flammables according to established safety guidelines.
- Use caution when operating welding and other spark-producing equipment.
- Clean or report all spills.
- **Report suspicious persons to security or plant manager.**
- Keep fire exits and escape routes clear and well marked.
- Know where alarm boxes are located.

## **NEVER...**

- Never leave open flames unattended.
- Never overload circuits.
- Never take shortcuts with safety procedures.
- **Never smoke or use flame or sparks in an area where flammables are present.**



## **Common Worksite Fire Hazards**

- Unprotected or faulty equipment
- **Unsafe storage of combustible materials**
- Inadequate ventilation
- Failure to follow established safety guidelines
- Inattention
- Human error



**FIRE SAFETY & EMERGENCY RESPONSE**

# Fire Danger of Flammable & Combustible Liquids

Common chemicals can be dangerous. These flammable and combustible liquids can burn or even explode under what seems like safe conditions:

**GASOLINE • ACETONE • KEROSENE**

## *Ten Tips for Safety*

1. Keep flammables away from fire and sparks.
2. Never smoke, cut or weld around them.
3. Keep flammables, combustibles and reactives away from each other.
4. Know the location of the right fire extinguisher for the type of chemical you're using.
5. Wear the right personal protective equipment for the job. Make sure it fits.
6. Work in well-ventilated areas.
7. Check to see that all containers are labeled and in good working order.
8. Use grounding and bonding wires to prevent dangerous static electricity while you are transferring chemicals from one container to another.
9. Know your company procedures for first aid and emergency response.
10. Take special care to handle, store and dispose of flammables and combustibles properly.

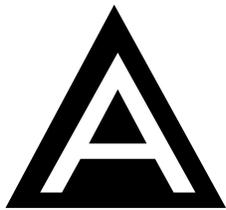
**To protect yourself, follow the safety tips, check container labels and material safety data sheets.**

# Fire Extinguishers: Choosing the Right Extinguisher



All fires aren't the same. Be sure to use the right extinguisher for the right fire. The wrong extinguisher can make the fire worse!

Read the label on the extinguisher. There are four kinds...



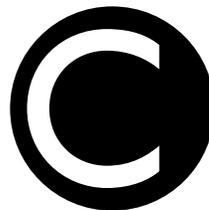
**Type A** (green label),  
for fires involving

-  wood
-  paper
-  cloth
-  rubbish



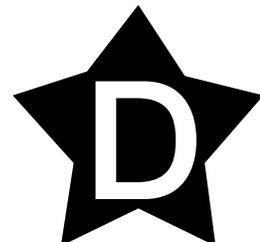
**Type B** (red label),  
for fires involving  
flammable gases/  
liquids, including

-  gasoline
-  solvents
-  vapors
-  gas leaks



**Type C** (blue label),  
for

-  electrical fires



**Type D** (yellow  
label), for fires  
involving com-  
bustible metals, such  
as

-  magnesium
-  sodium
-  potassium
-  sodium  
potassium alloys

***Be prepared. Don't wait for a fire to start before you find out:***

-  what kinds of fire extinguishers you have, and where they are

# Recognizing Medical Conditions

Medical emergencies are a workplace reality. Not every supervisor needs to know first aid and CPR. But supervisors should know who in the building is trained to handle emergencies, and what they can do in the meantime. Here are some symptoms and helpful responses for common medical emergencies:

## Choking

First, ask if the person needs help. If they say no, you may only make matters worse if you interfere. If they nod yes—or motion for help—use the Heimlich maneuver. Call for help if the situation doesn't clear immediately.

## Allergy Attacks

Allergy attacks are more likely to happen when the person is around paint or chemical vapors or insects (like bees). Symptoms include: itching, hives, swelling of eyes or mouth and difficulty breathing. Have the person sit down in an area with clear air. If they are having trouble breathing or go into shock, call for help immediately.

## Heart Attacks

Symptoms include chest pain, shoulder pain, nausea, fatigue and/or sweating. Call for emergency help immediately. Have someone start CPR if necessary.

## Diabetic Complications

Symptoms include extreme thirst, lethargy, weakness, mental confusion or even coma. Call for help immediately. If the person is conscious, give them fruit juice or hard candy.

## Seizure Disorders

During minor seizures (petit mal) the person loses awareness, stares and twitches. Once the episode is over, encourage the person to go to the hospital or see a doctor. During a severe seizure (grand mal) the person may lose consciousness, become very stiff and then twitch and jerk. Do not try to hold the person down or keep them still. Clear the immediate area to help prevent injury. Call for help immediately.

**Remember that OSHA requires the use of a "pocket mask" with CPR to protect against bloodborne disease. There should be one in your first aid kit.**

# First Aid

## For Adults Who Stop Breathing

Every second counts if someone has stopped breathing. Start rescue breathing immediately. Don't stop to loosen clothing or move the victim unless the victim is in a dangerous spot. Here's what to do:

1. Place victim on the back.
2. Open the breathing airway and remove anything from the mouth that should not be there. Place your hand on the victim's forehead.

---

*If there is a chance that the neck or spine is injured, skip the next step. Instead, gently pull the victim's jaw toward the top of the head to open the airway. Do not tilt the head. Proceed with step 4.*

---

3. With the other hand, gently lift the chin to tilt the head back.
4. If you have a pocket mask put it over the victim's mouth, if not place your mouth directly over the victim's mouth. With your fingers pinch the victim's nostrils shut.



5. Breathe out slowly. Watch for the chest to rise.

---

*If the victim's chest does not rise, try changing the head position. If that doesn't help, something may be blocking the airway. Use the Heimlich maneuver to dislodge the object.*

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6. Breathe into the victim so that the chest rises and falls every five seconds. Give the victim a chance to exhale.
7. Continue rescue breathing until the victim begins to breathe without help, or until medical help arrives.

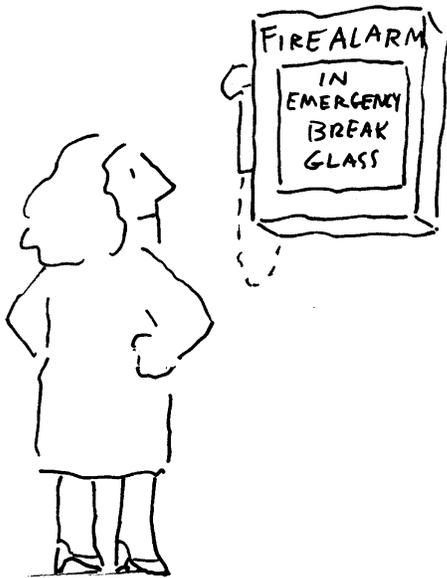


### The Heimlich Maneuver

Kneel with your legs on either side of the victim's waist. Make a fist. Hold it tight with your other hand. Place the fist just above the victim's navel. Make quick, strong thrusts with your fist upward into the abdomen. Repeat until the object is dislodged.

# Worksite Fire Emergencies

## Be prepared for a fire emergency:



- Know where fire alarm boxes are throughout your workplace.
- Learn your company's evacuation procedures and established escape routes.
- Know where fire extinguishers are located and what types of fires they are rated for.
- Know the fire rating of the materials in your work area.

## If there's a fire...

Extinguish the fire yourself only if



- you are certain the fire is small enough for you to handle
- you have the right fire extinguisher handy

Otherwise, sound the alarm immediately and begin evacuating the building. In a fire emergency, every second counts!

**REMEMBER:** There are four types of fires:

**Type A:** Wood, paper, cloth, rubbish, etc.

**Type B:** Flammable gas/liquids—oil, grease, paint, etc.

**Type C:** Electrical fires

**Type D:** Combustible metals

# **+ First Aid For a Choking Adult**

***When someone is choking you must act quickly.  
Follow these steps...***

**Find out if choking is the problem. The person may...**

- Clutch at the throat
- Nod yes if you ask, "Are you choking?"
- Be unable to speak or breath
- Have pale or bluish skin
- Be unconscious



**Do the Heimlich maneuver.**

- Stand behind the person.
- Put your arms around the person's waist.
- Make a fist with one hand.
- Place the fist against the person's stomach, with your thumb just above the person's navel.
- Hold your fist tight with your other hand.
- Make quick, strong upward thrusts into the person's abdomen.
- Repeat this until the object or food is forced out of the person's throat.

**If the person is lying down:**

- Turn the person face up.
- Kneel with your legs on each side of the victim.
- Do the upward thrusts from in front.

**To avoid injuries:**

- Use only your hands. Don't squeeze with your arms.



**Learn the Heimlich  
maneuver now.  
You could save a life!**

# First Aid For Eye Injuries

## Preventing Eye Injuries...

- Wear safety glasses, goggles or shields when necessary.
- Read emergency directions on chemicals before using them.
- Post the phone numbers for medical help and the poison control center in clear sight.

### Small Particles in the Eye (dirt, sand, or dust)...

-  Do not rub your eyes.
-  If the particle is under the upper lid, dislodge it by pulling the upper lid down over the lower lid.
-  If it's under the lower lid, pull down the lower lid. Look in a mirror and use sterile gauze to pull the particle out.
-  If these methods don't work, rinse the eye with water, holding the lids open.

### Large Particles in the Eye...

-  Do not try to remove the particle.
-  Gently place gauze or clean cloth in a circle around the outside of the eye.
-  Place a crushed cup over the object.
-  Wrap a bandage around both eyes.
-  Keep the victim calm and still.
-  Get medical help.

### Chemicals in the Eye...

-  Get the victim to an eyewash station or other source of running water quickly.
-  If the victim is wearing contact lenses, remove them.
-  Keep the injured eye lower than the other eye, to stop chemicals from getting into both.

 Do not apply neutralizers, ointments or drops to the eye.

 If the chemical is an acid, rinse the eye with water for 15 to 20 minutes.

 If the chemical is an alkali or "base," call a doctor or poison control center and follow their directions.

### Black Eye (eye has been struck)...

-  Cover the eye with a clean, dry dressing.
-  Place ice or a cold pack over the dressing.
-  Get medical attention.

### Dislocated Eye (eye has come out of its socket)...

-  Do not try to replace the eye.
-  Cover the eye with a clean, moist dressing.
-  Cover both eye sockets.
-  Go to an emergency room immediately.

# First Aid For Heart Attack

## Preventing Heart Attack

- Quit smoking.
- Exercise regularly.
- Avoid high-fat foods.
- Learn to reduce stress.
- Control your blood pressure.
- Get regular checkups.

When a person's heart stops beating, death can occur within minutes. Know the symptoms and what to do if heart attack strikes. You could save a life.

### A person having a heart attack may have...

- difficulty breathing, gasping
- pressure, squeezing, or feeling of fullness in the chest, often spreading to shoulder, arm, neck or jaw
- nausea, vomiting, indigestion
- cold sweat or clammy skin
- pale or bluish skin, lips or nails



### What to do...

**Call an ambulance immediately.**



### What you can do now...

You can never know when an emergency will occur. But you can be prepared. Ask your doctor or call your local hospital to find out where you can get training in CPR—cardiopulmonary resuscitation. Training takes only a few hours and could save the life of a loved one.

### If the victim is conscious

- help him or her sit up
- keep the victim warm and comfortable
- ask if the victim has heart medication, and give the medication if it is available



### If the victim is unconscious...

- look for an emergency medical ID card
- if breathing has stopped, give mouth-to-mouth resuscitation. If you have a pocket mask put it over the victim's mouth, if not place your mouth directly over the victim's mouth.
- if breathing and pulse have stopped, give CPR if you are trained

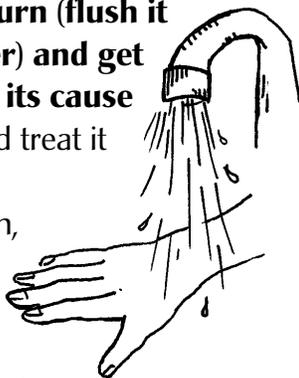


# **First Aid** **For Minor Burns**

Minor burns can be first degree—red skin and possibly small blisters—or even second and third degree if they cover only small areas of the body, and aren't on the hands, face, feet or genitals. Anything else should be considered a major burn, requiring immediate medical attention.

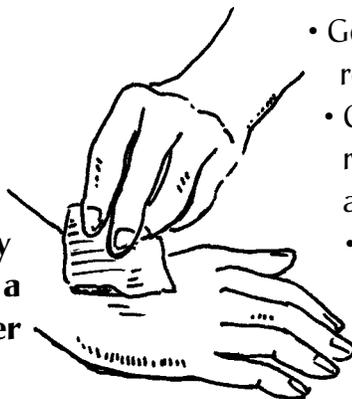
## **Treating Minor Burns**

- **Cool the burn (flush it with water) and get rid of its cause**
- Watch for shock and treat it if you need to
- Don't scrub the burn, break blisters or use neutralizers or ointments
- After flushing, cover the burn with a sterile bandage



## **Heat Burns**

- Rinse with plain tap water until pain goes away
- **Dry the burn by patting it with a sterile bandage, and cover**



## **Chemical Burns**

- Follow any directions on the container's label
- **Brush the chemical off if it is dry**
- Rinse the burn with water for 15 to 20 minutes



## **Electrical Burns**

- Get the victim away from electrical current without touching it yourself
- Check breathing and heartbeat—do rescue breathing and CPR if necessary and you know how
- Treat minor burns where electricity entered and left the body with cool water



# First Aid

## For Punctures and Impaled Objects

Puncture wounds are frightening and may cause shock or even death. Know how to act quickly, and you could save a life.

### Puncture First Aid

If the puncture is small...

- Allow the puncture to bleed.
- Bandage the wound.
- Find out if you need a tetanus “booster” shot.

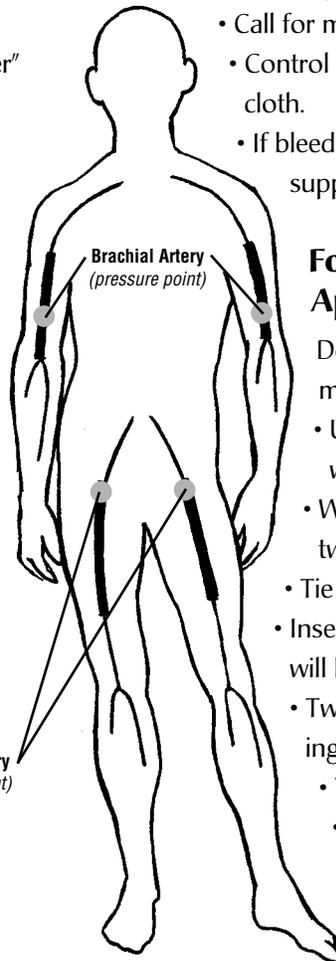
### If the puncture is deep, and won't stop bleeding...

- Call for medical help.
- Use a clean bandage or cloth to push on the wound.
- Keep pressure on the wound at all times.
- Wrap a bandage over the wound and tie tightly.
- Keep the wound above the victim's heart.
- If pressure doesn't stop the bleeding, press on the artery that supplies the wounded area.

### Impaled Object

If the object causing the puncture wound stays stuck in the body, don't try to remove it!

- Call for medical aid.
- Control bleeding by pressing around it with a clean cloth.
- If bleeding continues, use pressure on the artery supplying the wounded area.



### For Severe Bleeding—Apply a Tourniquet

Do this only if bleeding is out of control and medical help is not available immediately.

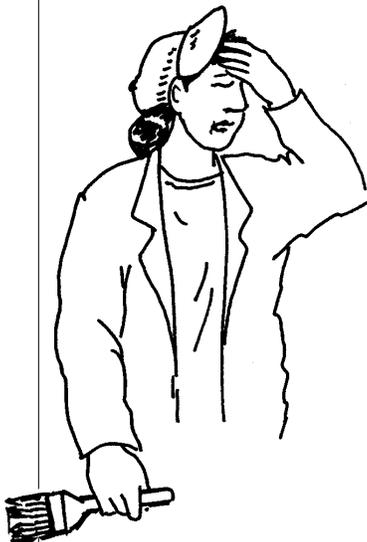
- Use a long piece of cloth—not string or wire.
- Wrap the cloth around the impaled limb twice, above the wound.
- Tie a knot in the cloth.
- Insert a stick through the knot—make sure it will hold.
- Twist the stick to tighten the cloth until bleeding stops.
- Treat the victim for shock.
- Do not try to remove the tourniquet without a doctor's help—it can cause death.

# **+ First Aid For Heat Stroke**

Heat stroke is a major overheating of the body. It can cause a sudden and complete breakdown, leading to brain damage or death.

## **Preventing Heat Stroke**

- Take it easy the first few days of high heat or humidity.
- Take frequent breaks.
- Drink lots of water.
- Avoid alcohol—it makes it harder for your body to keep cool.



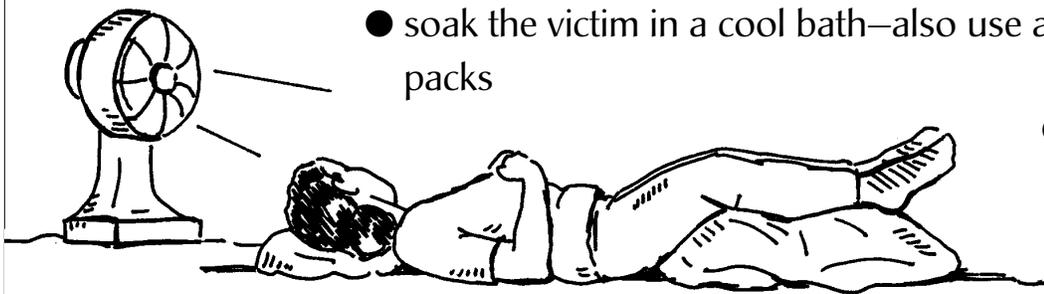
## **Symptoms of Heat Stroke**

- sweating stops—skin is dry and hot
- pulse is strong and fast
- body temperature is over 106°F
- person becomes confused or angry
- person feels chilled, nauseated, or dizzy, or loses consciousness



## **Treating Heat Stroke**

- call an ambulance
- use rescue breathing if you need to
- move the victim to a cooler area
- soak the victim in a cool bath—also use a fan or cold packs



- keep the victim lying down with feet raised

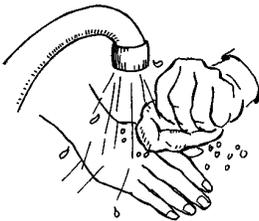
# **First Aid** **For Minor Wounds**

*Even if you suffer a small puncture wound or laceration, you may need a tetanus booster shot. If it's been several years since your last booster shot, check with your doctor.*

A minor wound is one that is small or on the surface of the skin. It may not bleed or, if it does, the bleeding stops quickly.

## **There are Four Kinds of Minor Wounds:**

1. **Cuts**, which can be caused by any smooth, sharp object such as a knife or a piece of broken glass.
2. **Lacerations**, which are cuts with jagged edges. They can be caused by sharp objects such as serrated knives or machinery.
3. **Abrasions or scrapes**, which occur when the skin is dragged across a rough surface, such as concrete.
4. **Punctures**, which are holes in the body. They can be caused by a stick, metal bit, staple, nail, or any other object that pierces the skin and enters the body.



### **Treating Cuts and Scrapes**

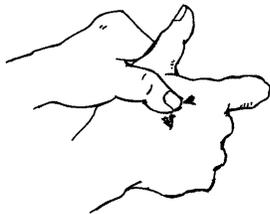
- Wash the wound with mild soap and water.
- Rinse with clean water.
- Let the wound air dry.
- Cover the wound with a sterile bandage.



### **Treating Lacerations and Punctures**

Because these types of wounds are often caused by machinery or rusty objects, there is a danger of infection from debris left in the wound.

- Clean the wound and surrounding skin with mild soap and water.
- Apply pressure around a puncture wound to help it bleed and clear away any debris that may be trapped inside.
- Bandage a puncture wound lightly; bandage a laceration as you would a cut or scrape.



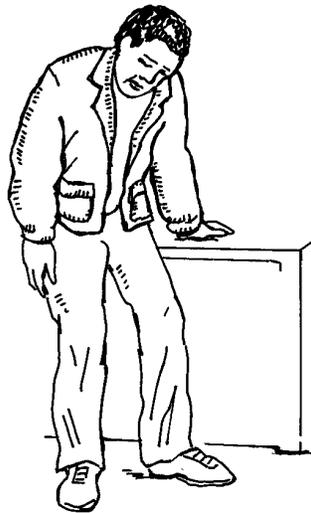
Remember, even a minor wound can become infected. If the area around the wound is red, tender or swollen after a few days, see your doctor.

# **First Aid For Shock**

Shock causes the blood flow to shut down. If a person is in shock, keep him or her calm and quiet to prevent damage to organs.

## **Symptoms of Shock...**

- Cool, moist or pale skin
- Weak, rapid pulse
- Shallow breathing
- Dull eyes/dilated pupils
- Nausea, trembling or vomiting
- Difficulty thinking or speaking clearly
- Unconsciousness



## **To Treat Shock...**

- Call the doctor, emergency room or poison control center.
- Check to see if the victim is breathing—if not, begin rescue breathing.
- Speak calmly to the victim.
- If the victim vomits, check for head or neck injuries—if there are none, turn the victim on his or her side and clear the mouth.
- Treat the cause of shock—for instance, control bleeding.
- Keep the victim comfortable, warm and lying down.



## **Allergic Shock...**

Allergic shock is a special kind of shock caused by the body's reaction to common substances. It can be very dangerous. In addition to ordinary shock symptoms, the victim may also show:

- Hives
- Itching/burning skin
- Swollen tongue/face
- Trouble breathing
- Tight chest
- Unconsciousness

**If you see a case of allergic shock, get medical help immediately. If the person has special medication to take in case of emergencies, give the medicine immediately.**

# **+** First Aid For Strains & Sprains

**Sprain:** a torn ligament, usually in a joint.

**Strain:** a torn muscle or tendon.

## **The Symptoms Are the Same:**

- Pain
- Swelling
- Difficulty moving the joint
- Black and blue areas

## **First Aid...**

- Stop using the injured part immediately.
- Raise the injured part above the level of the heart, resting it on blankets.
- Firmly (but not tightly) wrap a strain in an elastic bandage.
- Apply ice wrapped in a towel or bag for periods of 30 minutes, with 15-minute breaks in between.
- After 48 hours, moist heat and gentle stretching are okay.

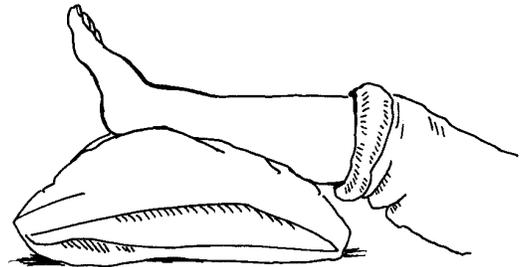
If there is a chance of a broken bone, don't move the joint. Apply a splint if possible.

## **Get Medical Help If...**

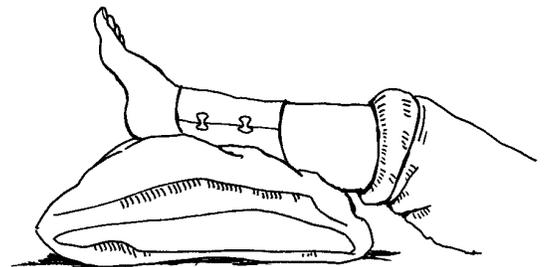
- There is a chance that a bone is broken.
- A sprain is moderate or severe.
- Pain is very strong or lasts more than 24 hours.
- Swelling doesn't go down after 24 hours.

## **Preventing Strains and Sprains**

- Warm up for any physical activity, whether it's work or play.
- Get in shape and wear proper equipment for your activity.
- Slow down and stretch when your activity is finished.
- Use proper lifting techniques.



*Elevate the injured part.*



*Wrap a strain in an elastic bandage.*



*Apply ice for periods of 30 minutes.*

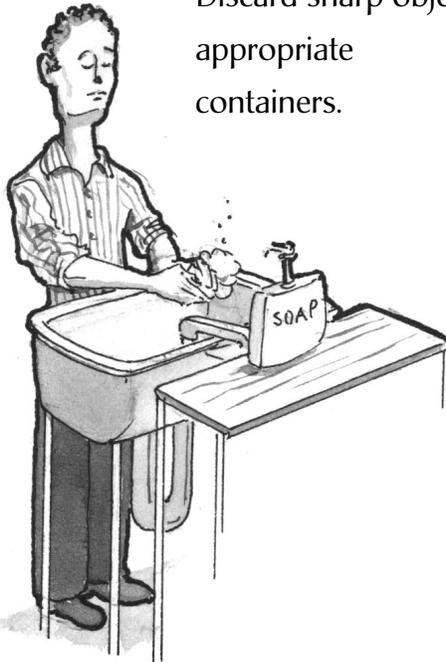
# Bloodborne Pathogens: Universal Precautions

To protect yourself from the unknown, make these precautions part of your daily routine.

## Always:

- Treat blood and body fluids as if they were infected.
- Protect yourself when appropriate with latex gloves and pocket masks (for CPR).
- Bandage cuts, scrapes and broken skin.
- Wash hands and exposed area with soap and water immediately after exposure.

- Discard sharp objects in the appropriate containers.



## Never:

- Break, bend or recap used needles or other sharp objects.
- Eat, drink or store food in an area with potential exposure.
- Smoke, put on makeup or handle contacts in an area with potential exposure.
- Pipette infectious liquids by mouth.



## Watch OSHA Warnings!

OSHA requires that potentially infectious materials be kept in containers that are:

- Red,
- Labeled with the Biohazard symbol
- Or both.

# Bloodborne Pathogens: HIV and Hepatitis B

## About Human Immunodeficiency Virus (HIV)

The human immunodeficiency virus (HIV) is the virus that causes AIDS (acquired immune deficiency syndrome). HIV makes people sick by attacking the immune system and keeping it from being able to fight infection. Eventually these infections take over and the person with AIDS dies. While there is no cure for AIDS, it is hard to get. By taking a few simple precautions you can set your mind at ease.

## About Hepatitis B Virus (HBV)

Hepatitis B virus is a potent bloodborne virus that attacks the liver, causing illness and sometimes death. But HBV is one of the few serious infectious diseases that can be prevented with a safe, effective vaccine. Vaccination is recommended if you are traveling or work in a profession with high risk of exposure.

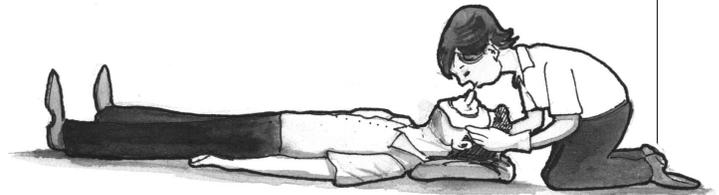
## Transmission of HIV and HBV

Both HIV and Hepatitis B can only be transmitted through body fluids. These include:

- blood
- semen
- vaginal secretions
- and other body fluids that might be exposed as a result of injury.

## Protecting Yourself

To protect yourself from HIV and Hepatitis B, wear latex gloves if you will be in contact with body fluids. Use a pocket mask when giving CPR. If you come in direct contact with body fluids, wash the area with soap and warm water and go to the emergency room.



# Protecting Against Chemical Hazards: Your Checklist for Safe Use of Chemicals

Remember these DOs and DON'Ts for handling dangerous chemicals such as corrosives and solvents:

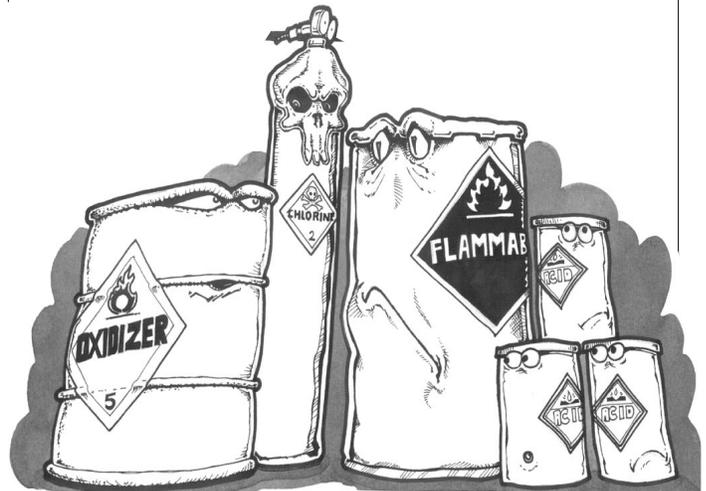
## ✓ DO...

- ▲ Read label and MSDS to learn special handling procedures.
- ▲ Mix corrosives or solvents slowly.
- ▲ Always add acids to water, not water to acids.
- ▲ Use the right personal protective equipment—such as goggles, safety gloves—with each chemical.
- ▲ Make sure your personal protective equipment fits right and that you know how to use it.
- ▲ Use the right respirator cartridge for the chemical.
- ▲ Know the location of eyewash stations and safety showers and how to use them.
- ▲ Wash your hands well before eating, smoking or leaving work.
- ▲ Use proper ventilation—such as fans and exhaust hoods.
- ▲ Know emergency first aid procedures—you can find them on the MSDS.

If you're unclear about your company's safety procedures for handling chemical substances, speak to your supervisor. Make sure you understand everything you need to know about protecting yourself and others from chemical hazards.

## ⊘ DON'T...

- ▲ Don't ever sniff a chemical to identify it.
- ▲ Don't wear contact lenses—they can absorb or trap chemicals against your eyes.
- ▲ Avoid putting your hands into corrosives or solvents—unless you're wearing gloves.
- ▲ Don't use a chemical if you don't know what it is.
- ▲ Don't skip safety precautions to get the job done faster.





# Manufacturer's Warning Labels

Chemical container labels are your key to staying safe.

## A CHEMICAL WARNING LABEL TELLS YOU...

- △ The **name** of the chemical—the common name, the chemical name or both.
- △ The **name, address and emergency telephone number** of the manufacturer.
- △ The chemical's **physical hazards**—what can happen to you if the chemical isn't handled properly.
- △ The chemical's **health hazards**—health problems that can result from overexposure.
- △ Instructions for proper **storage and handling** of the chemical.
- △ Basic **protective clothing, equipment and procedures** that are needed to work safely with the chemical.

## SPECIAL SIGNAL WORDS

IF THE LABEL SAYS:

IT CAN CAUSE:

DANGER

Immediate serious injury or death

WARNING

Potentially serious injury or death

CAUTION

Potentially moderate injury

### ✓ Always...

- ▲ Read the label and MSDS for every chemical you work with.
- ▲ Check that every container you use has a label.
- ▲ Report missing or damaged labels so they can be replaced.
- ▲ Put labels on portable containers for all hazardous chemicals.
- ▲ Be familiar with your company's emergency procedures for chemical spills, fires and exposure.

### ✗ Never...

- ▲ Use a container that isn't labeled.
- ▲ Cover labels so they can't be read.
- ▲ Ignore label warnings.



# Hazardous Material Identification System Labels

HMIS labels provide easy-to-understand information about chemical hazards.



## Color-Coded Sections

- BLUE:** health hazards—how the chemical can hurt you physically.
- RED:** flammability—how easy the chemical burns.
- YELLOW:** reactivity—how stable the chemical is.
- WHITE:** protective equipment—what personal protective clothing and equipment is needed when working with the chemical.

## Hazard Rating System

The blue, red and yellow sections of an HMIS label contain a number that indicates how severe the hazard is:

- 0 = Minimal hazard
- 1 = Slight hazard
- 2 = Moderate hazard
- 3 = Serious hazard
- 4 = Severe hazard

## PERSONAL PROTECTION EQUIPMENT INDEX

<b>A</b>	SAFETY GLASSES		
<b>B</b>	SAFETY GLASSES	GLOVES	
<b>C</b>	SAFETY GLASSES	GLOVES	APRON
<b>D</b>	FACE SHIELD	GLOVES	APRON
<b>E</b>	SAFETY GLASSES	GLOVES	DUST RESPIRATOR
<b>F</b>	SAFETY GLASSES	GLOVES	APRON  DUST RESPIRATOR
<b>G</b>	SAFETY GLASSES	GLOVES	VAPOR RESPIRATOR
<b>H</b>	SPLASH GOGGLES	GLOVES	APRON  VAPOR RESPIRATOR
<b>I</b>	SAFETY GLASSES	GLOVES	COMBINATION DUST AND VAPOR RESPIRATOR
<b>J</b>	SPLASH GOGGLES	GLOVES	APRON  COMBINATION DUST AND VAPOR RESPIRATOR
<b>K</b>	AIRLINE HOODMASK	GLOVES	FULL BODY SUIT  BOOTS
<b>X</b>	ASK YOUR SUPERVISOR FOR SPECIALIZED HANDLING INSTRUCTIONS.		

# DOT Labels and Placards

## PLACARDS AND LABELS SHOW...

by **both name and symbol** the type of hazardous material involved. On some placards the hazardous material is identified by a four-digit number.



## USE PLACARDS AND LABELS WHEN TRANSPORTING...

- ⚠ Explosives
- ⚠ Compressed gases
- ⚠ Flammable and combustible liquids
- ⚠ Flammable solids
- ⚠ Oxidizers and organic peroxides
- ⚠ Poisons
- ⚠ Radioactive materials
- ⚠ Corrosives
- ⚠ Certain miscellaneous regulated materials

## HOW TO USE PLACARDS AND LABELS

- ☞ **Place placards** (at least 10<sup>3</sup>/<sub>4</sub> inches by 10<sup>3</sup>/<sub>4</sub> inches) on both ends and sides of the vehicle transporting a hazardous material.
- ☞ **Place labels** (4 inches by 4 inches) on all packaged hazardous materials being shipped.

The Department of Transportation requires placards and labels on all transported hazardous materials. Don't even move a vehicle that has not been placarded, unless it's necessary to protect life and property.

# Hazardous Chemical Categories: Compressed Gases

Both flammable and nonflammable compressed, liquefied or dissolved gases are hazardous not just because they are pressurized, but also because of their fire hazard.



**Flammable Gases...** are compressed gases that will burn.

**Such as:** hydrogen, acetylene, vinyl chloride, propane.



**Nonflammable Gases...** will not burn by themselves, but may increase fire danger of other materials.

**They include:** oxygen, carbon dioxide, nitrogen.

## ✓ Always...

- ◆ Read the MSDS for instructions on using or storing them.
- ◆ Secure cylinders from falling.
- ◆ Close the valve and make sure the cap is in place.

# NFPA Diamond

The numbers on the diamond tell you about fire, health, reactivity and special hazards of the material it labels.

Here's the code:

**Health hazards**  
(Blue, left-hand corner)

- 0 = Hazards associated with ordinary combustibles in a fire
- 1 = Slightly hazardous
- 2 = Hazardous
- 3 = Extreme danger
- 4 = Deadly

**Specific Hazards**  
(White, lower corner)

- OX = Oxidizer
- W = Use no water
- ACID = Acid
- ALKALI = Alkali
- COR = Corrosive
- ☢ = Radioactive



**Flammability**  
(Red, upper corner)

- 0 = Will not burn
- 1 = Will ignite if preheated
- 2 = Will ignite if moderately heated
- 3 = Will ignite under normal conditions
- 4 = Burns readily under normal conditions

**Reactivity**  
(Yellow, right-hand corner)

- 0 = Won't react with water
- 1 = Unstable if heated
- 2 = Violent chemical change
- 3 = Shock and heat may detonate
- 4 = May detonate spontaneously

**REMEMBER, HIGH NUMBERS MEAN HIGH DANGER!**

# Hazardous Chemical Categories: Explosives & Blasting Agents



## **Class A Explosives...**

are the **most dangerous** explosive. They are sensitive to heat and shock and will detonate.

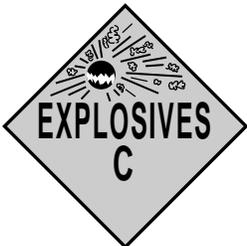
Dynamite, TNT, black powder and some military ammunition



## **Class B Explosives...**

are **highly flammable** and function by rapid combustion rather than detonation.

Rocket motors, display fireworks, some military ammunition



## **Class C Explosives...**

contain **small amounts** of Class A or Class B explosives, and will not usually detonate under fire conditions.

Fireworks, explosive rivets, detonating fuses, small arms ammunition



## **Blasting Agents...**

**must be primed** and are not likely to ignite accidentally.

Used primarily in demolition, mining and quarrying.

**Explosives are one of the most dangerous groups of hazardous materials. Handle with extreme caution. Always...**

- ✓ **Avoid** sparks, heat and flames.
- ✓ **Read the MSDS** before using or storing any explosive.

# Hazardous Chemical Categories: Flammable Liquids

The flammable liquid category of hazardous chemicals includes:



**Flammable Liquids...** having a flash point below 100°F.



**Combustible Liquids...** having a flash point between 100° and 200°F.

***🔥 Flammable and combustible liquids are extremely hazardous. 🔥***

## **Flash point:**

temperature at which enough vapor is given off by a flammable liquid to form a mixture with air that will ignite in the presence of a spark or flame. 🔥

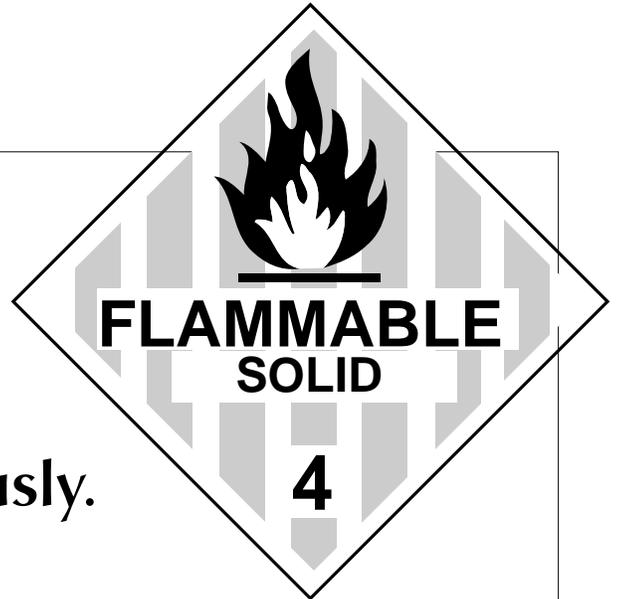
## **✓ Always...**

- ◆ Read MSDS and warning label instructions before working with them.
- ◆ Use and store flammable liquids in closed containers in temperature-controlled areas.
- ◆ Avoid sparks and flames.
- ◆ Prohibit smoking around flammable liquids.

# Hazardous Chemical Categories: Flammable Solids

## Flammable solids are hazardous

because they... ◆ Ignite easily.  
◆ Burn vigorously.



## Some flammable solids...

- ◆ May ignite from friction or heat.
- ◆ May ignite on exposure to air.
- ◆ Ignite in the presence of water.
- ◆ Ignite spontaneously.

## Always...

- ◆ Read MSDS and warning label instructions when working with flammable solids.
- ◆ Use and store flammable solids in temperature-controlled environments.
- ◆ Keep containers closed.
- ◆ Avoid heat, sparks and flames.
- ◆ Prohibit smoking around flammable solids.
- ◆ Ground and bond containers during transfer.

# Hazardous Chemical Categories: Poisonous Materials



Poisonous materials are dangerous to life even in small amounts.



## **Poison Gases...**

are gases known to be toxic even in small amounts.



## **Irritating Materials...**

give off dangerous or intensely irritating fumes.



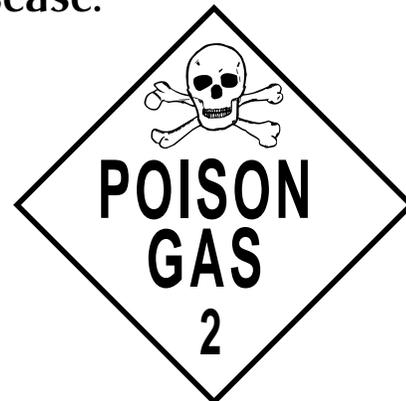
## **Class B Poisons...**

are less hazardous than poison gases but are still hazardous if released during transportation. This category includes some gases that are toxic to animals and presumed to be toxic to humans.



## **Etiologic Agents...**

are living microorganisms that may cause human disease.



## **Always...**

- ☛ Use DOT warning labels and placards when transporting poisonous materials.
- ☛ Read the MSDS or warning label carefully before using poisonous materials.

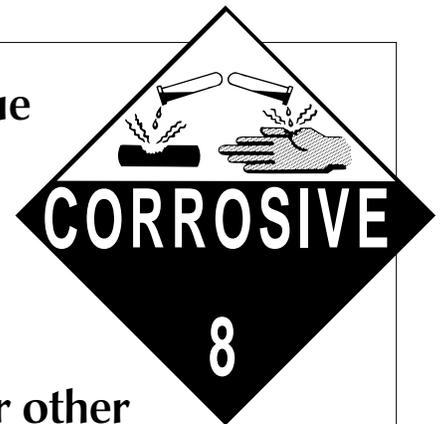
# Hazardous Chemical Categories:

## **Corrosive Materials**



**Corrosive materials are extremely hazardous!**

-  They cause severe damage to human tissue on contact.
-  They may damage or destroy materials they come into contact with, including transportation vehicles.
-  They may react violently with each other or other chemicals.



### **Corrosives include**

-  Acids, such as sulfuric acid and nitric acid
-  Caustics, such as sodium hydroxide, lye, or caustic soda

### **Always...**

-  Wear the appropriate personal protection equipment such as: gloves, goggles, face shield and apron.
-  Use and store corrosives only in accordance with directions on the MSDS or warning label on each corrosive.
-  Avoid contact with corrosives or their vapors.

# Hazardous Chemical Categories: Oxidizers

**Oxidizers are extremely hazardous chemicals that...**



- ☑ Release large amounts of oxygen, especially when heated.
- ☑ Stimulate the burning of combustible material.
- ☑ Increase the intensity of any fire.

**Organic peroxides are a group of oxidizers that...**

- ☑ Are combustible
- ☑ Release heat and toxic gases.

**Always...**

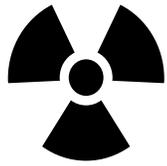
- ☑ Store and use oxidizers according to the instructions on the MSDS or warning label.

**Never...**

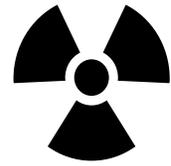
- ☑ Store oxidizers with flammable or combustible materials or in areas that get hot.

➤ **Remember:** Use extreme caution when handling and transporting oxidizers. ◀

# Hazardous Chemical Categories:



## Radioactive Materials



# R

## RADIOACTIVE MATERIALS ARE DANGEROUS!

A radioactive material is any material giving off a specific amount of radioactive energy.

Radioactives can also be described as materials which spontaneously emit ionizing radiation.

*Radioactives include a wide variety of materials such as:*

☢ nuclear fuel ☢ medical supplies and equipment ☢ radium-dial watches

### The Physical Effects of Radiation

☢ May not be apparent for weeks, months or even years after exposure.

### Always

- ☢ Limit the time you spend in close proximity to radioactive materials.
- ☢ Use appropriate labels and placards when transporting radioactive materials.

### Remember

- ☢ Handle all hazardous materials according to directions on the material's MSDS or warning label.



# Hazardous Chemical Categories: Miscellaneous Hazardous Materials

**Miscellaneous hazardous materials are materials that do not meet the definition of any other hazard class, but still present a hazard during transportation. This category includes:**

- ▶ Any material which has an anesthetic, irritating, noxious or other similar property which could cause extreme discomfort or annoyance in the event of leakage.

**Example: chloroform**

- ▶ Hazardous substances and wastes as defined by the U.S. Environmental Protection Agency.

**Example: waste epoxy resins**

- ▶ Elevated temperature materials

**Example: asphalt**

- ▶ Marine pollutants

**Example: lead from gasoline**

## **Remember:**

- ▶ Handle all hazardous materials according to the directions on the material's MSDS or warning label.
- ▶ Properly identify and prepare all hazardous materials for safe shipment.

# Properties of Hazardous Materials

[pg. 1]

These properties are used to help determine how hazardous a material is and how to handle the material if there is a fire or spill.

## Boiling Point...

The temperature at which a liquid boils at normal atmospheric pressure.

- ◆ The lower the boiling point of a liquid, the greater the fire hazard if it is flammable and the greater the health hazard if the vapors are toxic.

## Vapor Pressure...

How easily a substance gives off vapors.

- ◆ The higher the vapor pressure, the more volatile the substance is and the more vapors are given off.
- ◆ Vapor pressure increases with heat. *Flammable substances with high vapor pressures pose an extreme fire hazard.*

## Volatility...

How easily a substance evaporates.

- ◆ The higher the vapor pressure, the greater the volatility of a substance.

## Flash Point...

At or above this temperature a flammable substance gives off enough vapor into the air that the mixture of vapor and air will ignite if there is a spark or other source of flame.

*The lower the flash point, the greater the fire hazard.*

## Auto Ignition Temperature...

At this temperature a substance is hot enough to ignite even without being lit—it will spontaneously combust.

# Reactivity of Hazardous Materials

**These properties help determine how reactive a substance is with air or other materials.**

## **Air Reactivity...**

describes how likely a substance is to ignite or release energy when exposed to air.  
*Substances with high air reactivity may be dangerous when exposed to air.*

## **Catalysts and Inhibitors...**

- Catalysts are substances that increase the rate of a chemical reaction.
- Inhibitors slow down the rate of reaction.

*Inhibitors may be added to highly reactive substances to make them more stable.*

## **Oxidation Ability...**

*how readily* a substance gives off oxygen.

*Oxidizers easily give off large amounts of oxygen.*

*Released oxygen increases the rate at which nearby combustible materials burn.*

## **Polymerization...**

an **often violent** chemical reaction in which large molecules are formed from many small molecules.

## **Water Reactivity...**

**how readily** a substance reacts with water.

*Some materials react explosively on exposure to water.*

# Watch Out for Incompatible Chemicals

**Warning:** Some chemicals just don't belong together. They can react to create toxic smoke, gas, heat, fire or even explosions.

## Oxidizers and Flammables...

Fires need oxygen to burn.

**Oxidizers** give off large amounts of oxygen.

- ⚠ Keep any material labeled "oxidizer" away from all flammable and combustible materials, in a room that is fire-protected.
- ⚠ Store flammable liquids in a separate, ventilated room, in fire-resistant containers that have been grounded to prevent sparking.
- ⚠ Read the MSDS before using oxidizers and flammables.

*Putting oxidizers near flammable materials is like giving matches to a pyromaniac.*

## Acids and Caustics...

are opposites that react violently with each other and many other chemicals. Many acids are also oxidizers. Many caustics react violently with water.

- ⊘ Store acids and bases in separate areas in clearly labeled containers.
- ⊘ Read the MSDS before using these dangerous chemicals.



# Properties of Hazardous Materials

[pg. 2]

## Flammable Limits...

define the "flammable range" of a substance. Since vapors need the right amount of oxygen to burn, vapors will not burn if there is too much or too little of the vapor in the air.

- ⚠ Lower flammable limit (LFL): the smallest concentration of vapor necessary for the substance to burn.
- ⚠ Upper flammable limit (UFL): the highest concentration of vapor that will burn.

## Specific Gravity...

how heavy a substance is compared to water.

- ⚠ A substance with a specific gravity greater than 1.0 will sink in water;
- ⚠ A substance with a specific gravity lower than 1.0 will float.

## Vapor Density...

how heavy a vapor is compared to air.

- ⚠ A substance with a vapor density greater than 1.0 is heavier than air and will sink to the ground.

## Water Solubility...

how easily a substance dissolves in water.

*Flammable substances that dissolve in water may require special fire extinguishing methods.*

## Concentration...

how much of an active ingredient is contained in a given solution, in percent by weight or percent by volume.

## pH...

measures how basic or acidic a substance is on a scale from 1 to 14.

- ⚠ low pH = acidic
- ⚠ high pH = basic
- ⚠ pH of 7 is neutral

## Viscosity...

how thick a liquid is.

Many liquids become less viscous when they are heated.

# Storing Hazardous Chemicals

## To store hazardous chemicals safely, always...

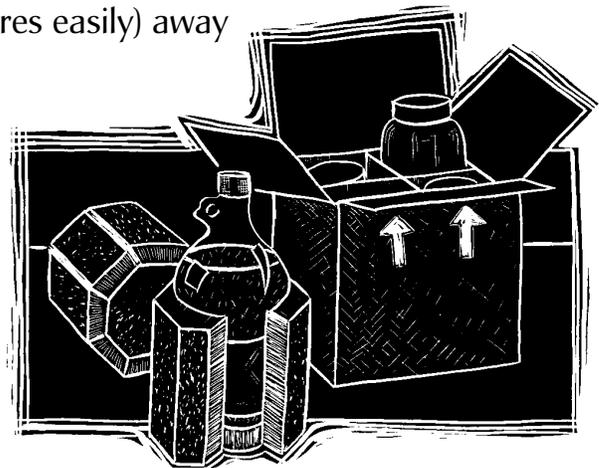
- ⊗ Read the MSDS and container label for safe storage information.
- ⊗ Store all hazardous chemicals in tightly closed containers.
- ⊗ Check storage containers regularly for leaks. Make sure caps and spouts are in good working order.
- ⊗ Store acids and caustics away from each other.
- ⊗ Clean up spills or leaks immediately, according to label instructions.

## Flammables, including solvents, corrosives and oxidizers

- ⊗ Store them in a temperature-controlled environment, away from other chemicals and combustible materials.
- ⊗ Dispense flammables and corrosives from safety-approved nozzles and dispensers only.
- ⊗ Use grounding and bonding wires when transferring flammables from one container to another.
- ⊗ Never smoke or use spark-producing equipment around flammables.
- ⊗ Store oxidizers (any substance that causes fires easily) away from flammables and combustibles.

## Reactives...

- ⊗ Use extreme caution. Some explode on contact with air, or from slight movements.
- ⊗ Store them in temperature-controlled areas that do not vibrate or receive shocks.
- ⊗ Avoid bumping or jostling containers.



# Preventing Explosions: Tips for Worksite Safety

**To prevent an explosion, know how to use and store materials safely, and eliminate hazards.**

## **Explosions may be caused by...**

- ⚠ Exposure of gases to heat.
- ⚠ Chemical reaction.
- ⚠ Exposure of certain chemicals to heat, water or air.



## **To safely store and use chemicals...**

- ⚠ Read Material Safety Data Sheets for the substances you work with.
- ⚠ Wear appropriate protective equipment.
- ⚠ When transferring flammable materials, make sure containers are labeled and grounded.
- ⚠ Check caps, screens, valves and seals for leaks and replace or dispose of them.
- ⚠ Do not expose explosive chemicals to air, water or heat.

## **To make your workplace safer...**

- ⚠ Clean up spills quickly and follow disposal guidelines.
- ⚠ Keep your area free of dust and debris.
- ⚠ Obey "no smoking" signs.
- ⚠ Check your equipment for corrosion, carbon build-up and leaks.
- ⚠ Report any signs of wear and tear to your supervisors.

# Lead Hazards



## Lead Is a Poison!

- ⚠ Even small amounts can cause permanent damage to the brain, blood, kidneys, liver, bones and reproductive system.
- ⚠ Once lead gets into your body, it stays there for a long time.

***Lead is found in old paint, certain types of construction materials, bricks and mortar, roofing material, insulation and support rods, as well as pipes and metal solder.***

## You Can Get Lead Poisoning By...

- ⚠ Inhaling dust from lead-containing materials, as when sanding old paint.
- ⚠ Eating or smoking in areas contaminated with lead dust.

## How You Can Avoid Lead Poisoning...

- ⚠ Always use ventilation systems, respirators and protective clothing required by your job.
- ⚠ Never eat or smoke in an area where lead dust is present.
- ⚠ Learn what materials at your workplace contain lead and take extra precautions in handling them.
- ⚠ Follow your company's guidelines for regular medical checkups to make sure you are not accumulating lead in your body.

# Emergencies Involving Solvents

**Many solvents are toxic or flammable. Solvent emergencies require quick action.**

To prevent emergencies, read all Material Safety Data Sheets and warning labels on the solvent you're working with. If a spill occurs...



- Get everyone out of the area.
- Notify your supervisors.
- If you know the proper procedure and the spill is small, clean up the spill.
- Summon first aid if there is an injury.
- If you get chemicals on your clothing, remove them.
- Do not reenter the area without personal protective clothing.

**If you inhale solvent vapors, symptoms may include headache, dizziness, nausea, vomiting or difficulty breathing.**

- Get to fresh air.
- Ask a coworker to summon medical aid.



**If you have swallowed a solvent:**

- Call a poison control center.
- Do not swallow or drink anything unless you are told to on the solvent's label or by a medical professional.

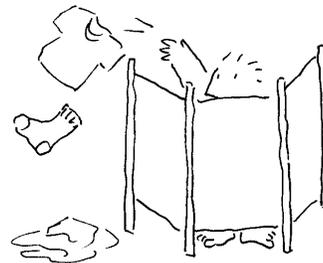


**If you get a solvent in your eye:**

- Go to an eyewash station, or, if a station is unavailable, use any clean water.
- Remove contact lenses.
- Flush your eyes for 15 to 20 minutes.
- Do not apply neutralizers or ointments.

**If you get a solvent on your skin:**

- Do not scrub the skin.
- Flush skin with water for 15 to 20 minutes.
- Remove any contaminated clothing.
- Cover the irritated area with a sterile dressing after rinsing.
- Don't apply burn ointments or neutralizers.



**After you've been exposed to a solvent, symptoms might not appear immediately. Stay under medical observation until your doctor releases you.**

# Emergencies Involving Corrosives



**Corrosives are harsh acids and caustics that can harm the human body very quickly.**

## If a Corrosive Gets on the Skin...

- ▲ Rinse (don't scrub) the affected area for 15 to 20 minutes, even if you feel no pain from the corrosive.
- ▲ Remove clothing with corrosive spills on it at once. Use gloves.
- ▲ Do not apply burn ointments or neutralizing solutions.
- ▲ After thorough rinsing, cover the burn with a sterile dressing.
- ▲ Get medical attention.



## If Corrosive Vapors Are Inhaled...

- ▲ Get to fresh air immediately.
- ▲ Get medical attention.



## If a Corrosive Is Swallowed...

- ▲ Get medical assistance immediately.
- ▲ Have someone call the local poison control center.
- ▲ Don't drink or eat anything unless the label instructions or a medical professional tell you to.

## For Other Emergencies...

Handle a spill, leak, fire or other emergency yourself only if it is small and you are trained to do so. Otherwise, get everyone out of the area and notify your supervisor.

## Corrosive emergencies demand quick action. Learn what to do now...

- ▲ Study the label and Material Safety Data Sheet of each corrosive you use.
- ▲ Learn how to handle, store and dispose of corrosives.
- ▲ Learn company procedures for emergencies involving corrosives.
- ▲ Learn the locations of eyewash stations, safety showers and fresh air sources.
- ▲ Know who to contact to get immediate medical attention.

# Responding to a Chemical Spill



## A Quick Response Is Important...

- ◆ Report spills immediately.
- ◆ Do not touch or breath fumes from the spill.
- ◆ If it is safe to do so and you know the proper procedure, clean up the spill.
- ◆ For larger spills of hazardous chemicals, get everyone out of the area.

*A trained spill response team will manage the spill using appropriate protective clothing, chemical-resistant tools and absorbent materials.*

## After the Spill...

- ◆ Be sure clothing and equipment involved in the spill or cleanup are decontaminated.
- ◆ Learn what can be done to prevent future spills.

## To Prevent Spills...

- ◆ Inspect containers for leaks, corrosion or worn seals.
- ◆ Close containers after use.
- ◆ Learn how to dispose of chemicals you no longer need, and dispose of them promptly.
- ◆ Keep your work area clean and orderly.

## Be Prepared for Emergencies

### To Be Ready in Case a Spill Does Happen...

- ◆ Know your company's emergency response plan, evacuation routes and your assigned role in case of a spill.
- ◆ Post emergency phone numbers in your area.
- ◆ Read the labels and MSDS for chemicals you use, so you will know what hazards a spill might cause, and what procedures you should follow for each type of spill.

# Emergencies Involving Flammables



**Flammable: A gas or liquid that can burn or explode at close to room temperature.**

**Take quick action to prevent an emergency involving flammables from becoming a tragedy. Follow these guidelines:**

- ☞ Handle the emergency yourself only if it is small and you are trained to handle it.
- ☞ Turn off any flames and equipment that can spark.



- ☞ Open windows and ventilate the area thoroughly.
- ☞ Clean up any spills using safe procedures and materials.
- ☞ Remove contaminated clothing immediately.
- ☞ If there is a fire, make sure to use the right kind of extinguisher.
- ☞ If there is any chance of explosion, evacuate the area as soon as possible, closing the doors as you leave.
- ☞ Go back into the danger area only if you've been trained and you are wearing the right personal protective equipment.
- ☞ Get medical attention for victims of the emergency as soon as possible.



## Be prepared for flammable emergencies...



- ☞ Read all Material Safety Data Sheets and training materials when handling dangerous substances.
- ☞ Learn what fire extinguisher is right for the flammable you are using and where it is.
- ☞ Know your company's emergency plans and escape routes.
- ☞ Know the location of the nearest eyewash stations, safety showers and fresh air sources.
- ☞ Know who to contact if the emergency is too big to handle yourself.



**Watch out for the "domino effect": a small spark causes gasoline to explode, leading to a large fire, which leads to a large explosion.**

# Emergencies Involving Reactives

**Reactives are highly dangerous chemicals. Some may explode at the slightest movement. Others may explode on contact with air.**

## **Before you work with reactives...**



- ☞ Know the location of the nearest eyewash stations, safety showers and fresh air sources.
- ☞ Read the MSDS and container label for each chemical.
- ☞ Learn your company's emergency plan.
- ☞ Learn first aid skills, including CPR.
- ☞ Ask your supervisor for information if there is anything you still don't understand about handling reactives.

## **In an emergency...**

- ☞ Leave the area quickly unless you are trained to handle the emergency.
- ☞ Close all doors to the emergency area.
- ☞ If possible from the outside, turn off flames or equipment that can spark.
- ☞ If possible, open windows to ventilate the area.
- ☞ Get medical help for any injuries.
- ☞ Perform first aid if necessary.



**Reactives demand a quick reaction.  
Find out what to do before an emergency happens.**

# Lifting Basics

*Safe lifting can save you from serious injury.*

## Think Before You Lift

- ? Do you have firm footing and a clear path?
- Is it safe to lift it alone?

*Ask a coworker for help or get mechanical help if a load is heavy or awkward.*

## Lifting the Load:



### 1. Tuck your pelvis

...by tightening your stomach muscles, to keep your back aligned. Keep your feet shoulder-width apart.



### 2. Bend your knees

...to let your legs do the lifting. Be sure to maintain the natural curve of your back



### 3. Hug the load

...to keep under it as much as possible. Be sure to grasp the load at opposite corners.



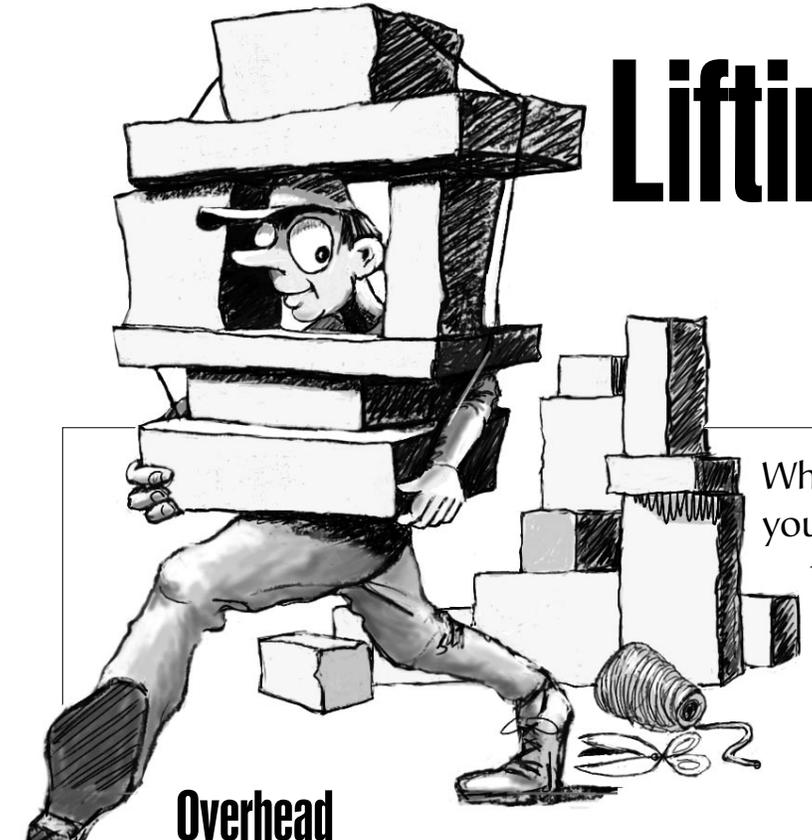
### 4. Avoid twisting

...by pointing your feet, knees and chest in the same direction. Lift the object and then turn your whole body.

**Putting It Down:** Use the same technique in reverse.

# Lifting Awkward Loads

When the standard safe lift—bending your knees, hugging the load, letting the legs do the work—can't be used, follow these guidelines.



## Overhead Loads...

- ◆ Use a stool or ladder to avoid overreaching.
- ◆ Test the weight, then slide the object toward you and hug it close as you descend.
- ◆ Use leveraging as much as possible.
- ◆ If possible, hand it to a coworker before descending the ladder or stool.

## Odd-Sized Loads...

- ◆ Carry long, light objects such as pipes or lumber on your shoulder, with the front end higher than the rear.
- ◆ Get a helper for long, heavy loads. Each of you should shoulder it on the same side and walk in step.
- ◆ For large loads that block your vision, get mechanical help or ask a coworker for help, even if the load is light.

## Reaching Into a Bin

(or other storage area)...

- ◆ Stand with feet at shoulder distance apart.
- ◆ Slightly bend your knees.
- ◆ Start to squat, bending your hips and knees, not your waist.
- ◆ Slide the load as close to your body as you can.
- ◆ Tighten your abdominal muscles.
- ◆ Raise yourself using your leg and hip muscles.
- ◆ If possible, brace your knees against the side of the container for additional support.
- ◆ Get help if the load is more than moderately heavy.

***Don't take chances with your back. When in doubt, get help.***

# Material Handling

## Dollies and Hand Trucks

*To use dollies and hand trucks safely...*



➔ **Choose the truck or dolly that's designed for the job you do.**

➔ **To load correctly:**

Put heavy objects on the bottom.

Balance the load over the axle, to avoid spills.

Make sure nothing hangs over the edges, and that you can see over the top.

➔ **To move safely:**

Use your legs, not your back, to shift the load into a traveling position. Keep your knees bent and your back in its natural curve.

Push, don't pull, loads, except when approaching a doorway. At a doorway stop, turn yourself and your load around to face away from the doorway. Then, pull the load through the entrance. This is done to prevent the spilling of your load.

Avoid walking backwards if possible.

When going into tight spaces, always move the truck ahead of your body so you don't get pinned against something.

Use care when moving near the edges of platforms.

➔ **Motorized hand trucks can be dangerous. Use them only if you've been trained.**

# The Mechanics of Lifting

## How Your Back Works

### *The elements of your back...*

- moveable bones (vertebrae)
- shock absorbers (discs) between the vertebrae
- ligaments and muscles that keep the back aligned in three balanced curves

**Unsafe lifting...** is any lifting that upsets your back's alignment, such as:

- bending at the waist to pick up or put down an object.
- twisting as you lift or put down an object.

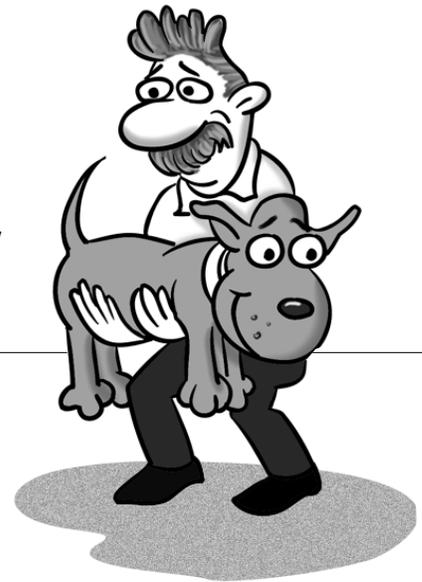
*When you lift unsafely, your back is forced to work too hard.*



**Safe lifting...** keeps your back in alignment. You do this by:

- bending your knees instead of your back.
- holding the load close to you.
- lifting straight up, then turning the whole body by moving one foot at a time.

*When you lift safely, your legs do the work, not your back.*



### **Remember...**

Back injuries are the most common industrial accident.

Before you lift, ask yourself:  
“Does it have to be lifted?”

If so, are there mechanical aides available?”

“Can I lift it alone?”

“Is it too big or awkward?”

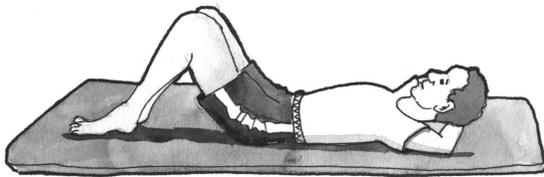
“Do I have a clear path and good footing?”



# Back Exercises

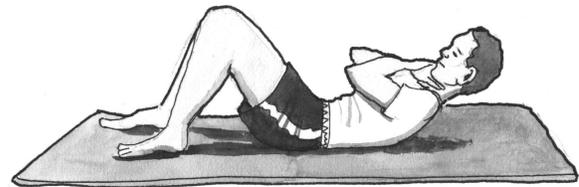
**Making  
Your  
Back  
Work  
for You**

Back exercises strengthen the back and help protect you from accidental injury. Do these exercises daily and you'll be doing your back a favor.



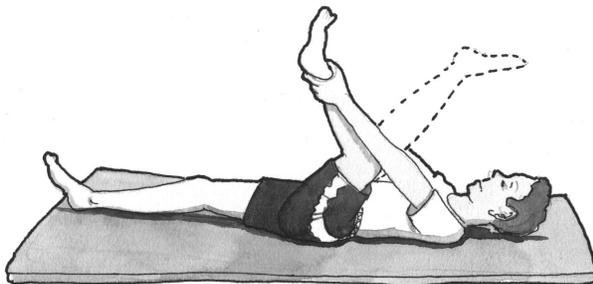
## Pelvic Tilt

- Lie on your back with knees bent and feet flat on the floor.
- Slowly tighten your stomach and buttocks as you press your lower back onto the floor.
- Hold for 10 seconds and relax.
- Repeat the sequence 5 to 10 times.



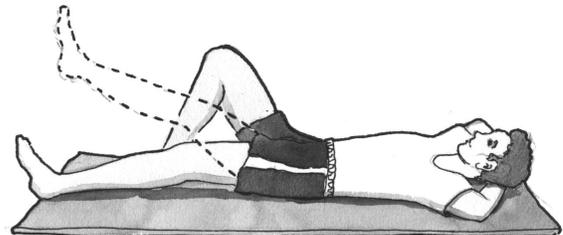
## Bent-Knee Sit-Ups

- Lie on your back with knees bent, feet flat and your lower back pressed into the floor (pelvic tilt).
- Cross your arms across your chest (or lace your fingers behind your head).
- Tighten your stomach muscles and slowly raise your shoulders off the floor. Do not curl your head forward.
- Hold for 10 seconds then return to your starting position.
- Repeat 5 to 10 times.



## Hamstring Stretch

- Lie on your back with one leg straight in front of you and the other bent.
- Press your lower back into the floor.
- Pull the knee of the bent leg as far into your chest as you can.
- Holding the ankle of the bent leg, slowly try to straighten the leg.
- Hold for 10 seconds and relax.
- Repeat 5 to 10 times
- Repeat the sequence with the other leg.



## Leg Lift

- Lie on your back with one leg straight in front of you and the other bent.
- Press your lower back into the floor.
- Slowly raise the straight leg as far as you can.
- Hold for 10 seconds and relax.
- Repeat 5 to 10 times
- Repeat the sequence with the other leg

**LIFTING & MOVING MATERIAL**

# Material Handling

## Powered Hand Trucks



Before operating a powered hand truck, get the special training that will help you use your model safely. In addition, observe these safety rules:

- Check your truck's condition before using it and have any problems serviced.
- Know how to start and stop the truck gradually.
- Always face the direction of travel.
- Lead the truck from the side of the handle, standing to one side of the truck.
- To travel close to a wall, in a tight space or down a hill, operate it in reverse and walk behind it.
- Stay away from areas with flammable, combustible or toxic materials, unless the truck is identified for such use.
- Always give pedestrians the right of way.
- Stop at corners and doorways and sound the truck's horn.
- Move no faster than a normal walking pace.
- Keep your hands free of grease and water.
- Never ride the truck or offer rides to others unless it's designed to be ridden.
- Make sure loads are low enough to see over.
- Move only those pallets or skids that are loaded safely.

**Remember: Even hand trucks can cause injuries if used incorrectly.**

# Basic Rules For Forklift Operation

## Be a safe operator...

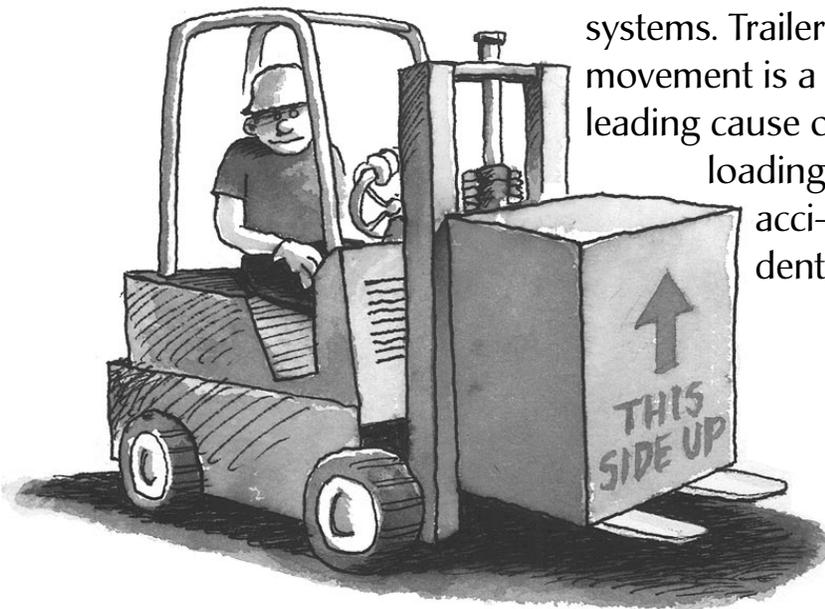
- Get training in how to operate your truck.
- Always wear your safety belt.
- Keep your hands and feet inside the cab.
- Always check for pedestrians!

## Load up safely...

- Make sure pallets are well stacked and secure.
- Make sure the load doesn't obstruct your view.
- Make extra trips instead of overloading.
- Make sure the vehicle you are unloading has been secured—chocks ahead of wheels and/or trailer restraint systems. Trailer movement is a leading cause of loading accidents.

## Use your truck right...

- Know your truck's capabilities.
- Be sure your truck meets ANSI safety requirements.
- Stay within the load capacity for your vehicle.
- Keep the load no more than six to 10 inches off the floor.
- Use extreme caution when turning.
- Keep your truck in good working order.

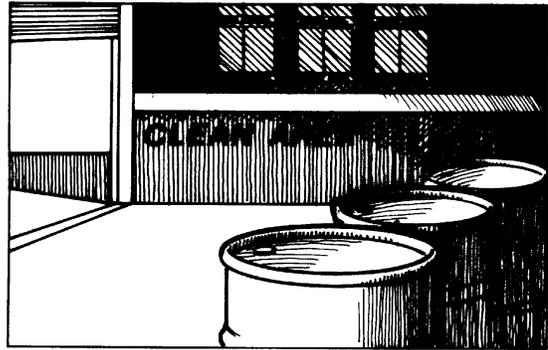


# Working Safely On Loading Docks

*Follow safe procedures to keep hazards such as spills, unsecured trailers and unstable loads from becoming accidents.*

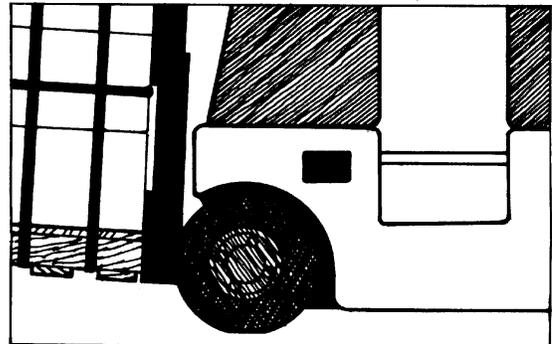
## Dock Safety

- Never store materials in the dock area.
- Keep the dock area free of obstacles and spills.
- Use convex mirrors to get rid of blind spots.



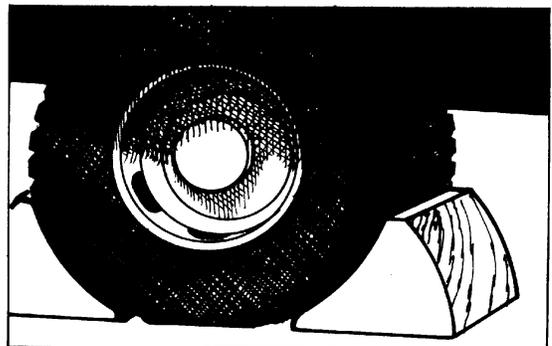
## Lift Truck Safety

- Never operate a lift truck without training.
- Always inspect the lift truck before using it.
- Always wear safety belts.
- Inspect stacked pallets to make sure they are secure.
- Never lift the load more than six to 10 inches off the floor.
- Lift trucks should meet ANSI safety standards.
- Inspect and maintain your truck regularly.



## Trailer Safety

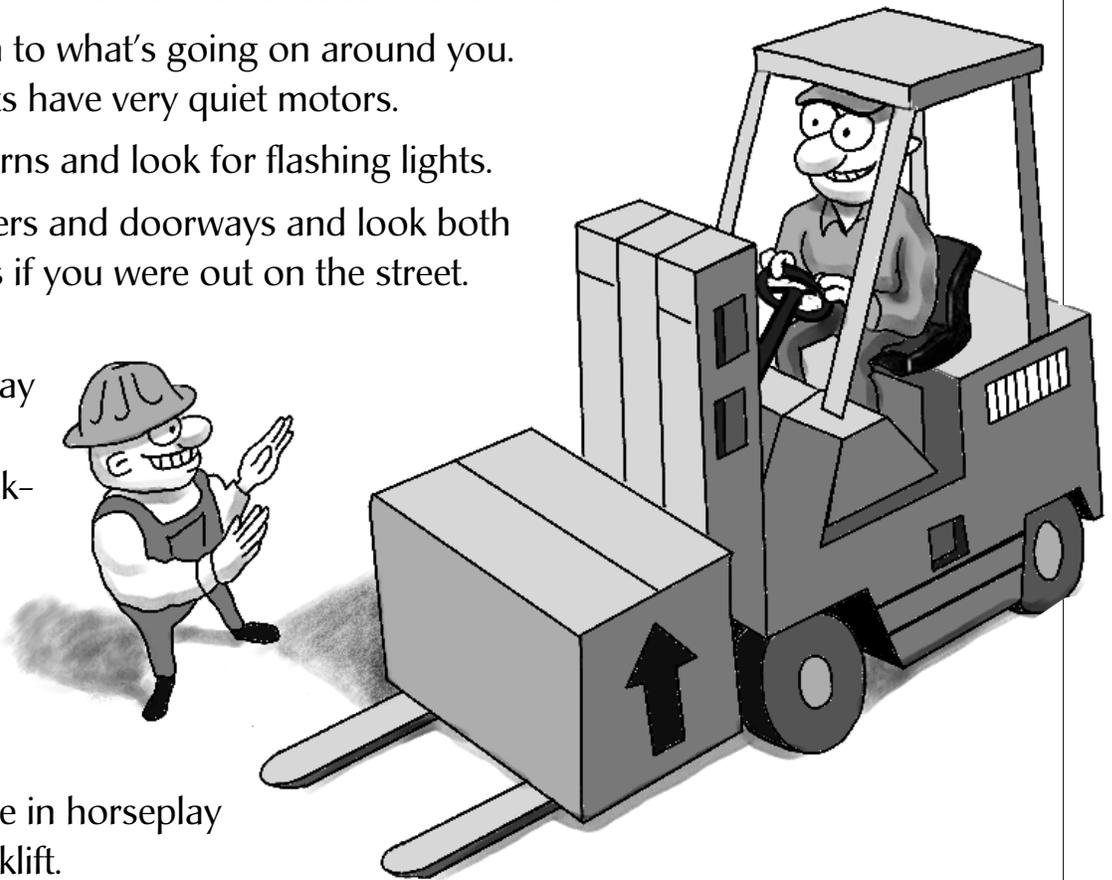
- Always place chocks in front of trailer wheels while loading.
- Make sure the emergency brake is set.
- Use truck restraint systems if available.
- Before docking trailers, make sure you are trained in the safe use and maintenance of restraint systems.



# Working Safely Around Forklifts

## Forklifts can be dangerous to work around. Stay safe—remember these cautions:

- Work in designated areas only. Avoid shortcuts through traffic areas.
- Let the forklift operator know you're working in the area.
- Be careful not to trip on the lowered forks of a stopped forklift. They're hard to see.
- Never walk under the elevated loads of a forklift.
- Pay attention to what's going on around you. Many forklifts have very quiet motors.
- Listen for horns and look for flashing lights.
- Stop at corners and doorways and look both ways—just as if you were out on the street.
- Forklifts can move fast. Stay clear when a forklift is backing up or turning.
- Never hitch a ride on a forklift.
- Never engage in horseplay around a forklift.



# The Hazards of Electrical Shock

Electricity follows the easiest path to the ground. If you touch a live electrical part while you are in contact with the ground, current passes through you to the ground, causing a shock.

## Shock can cause...

- ⚡ Heartbeat and breathing to stop, leading to death
- ⚡ Muscle contractions that result in falls, broken bones or bruises
- ⚡ Severe internal and external burns

## The effects of shock depend on...

- ⚡ The type of circuit
- ⚡ Its voltage
- ⚡ How it travels through the body
- ⚡ How long it lasts

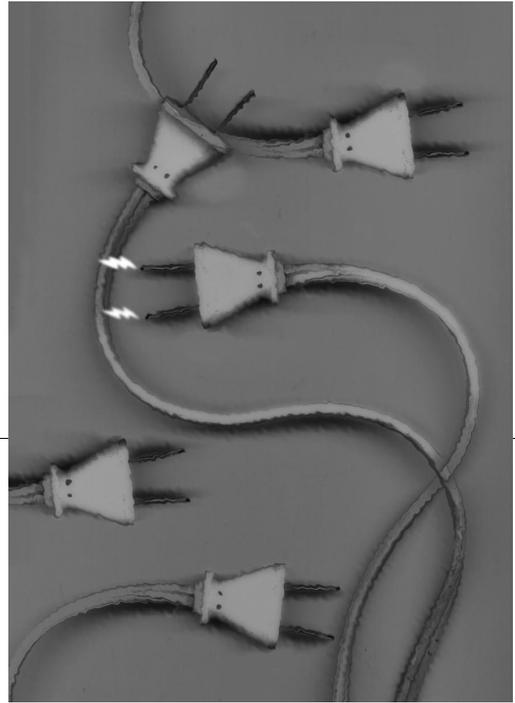
## To prevent shock, use safe equipment such as...

- ⚡ Clean, dry, undamaged cord insulation
- ⚡ Guards, to cover energized equipment parts
- ⚡ Fuses, circuit breakers and ground fault circuit interrupters to cut off power during a circuit overload or short circuit

## And safe work habits...

- ⚡ Keep a distance from exposed wires or parts.
- ⚡ Avoid using equipment in wet conditions.
- ⚡ Always use grounded tools and grounded circuits.
- ⚡ Use protective clothing and devices, such as rubber gloves, safety mats or special tools, when required.

# Working Safely With Electricity



**To prevent unsafe conditions and actions, follow this checklist:**

## **ALWAYS...**

- ✓ Check equipment, cords and attachments before each use.
- ✓ Report any damaged equipment promptly.
- ✓ Make sure equipment is properly grounded and plugged into grounded circuits.
- ✓ If flammable or corrosive chemicals are nearby, use extreme caution with electricity. Follow your company's procedures for operating electrical equipment in their vicinity.
- ✓ Use your company's lockout/tagout procedures to ensure that equipment is turned off—and stays off—during maintenance and repairs.
- ✓ Stay clear of energized parts whenever possible. If you must work with energized parts, always use protective equipment, such as rubber gloves, sleeves, blankets, mats and nonconducting tools.
- ✓ Keep conductive materials away from sources of electricity—these include steel wool, metallic cleaning cloths and some chemical solutions.

## **NEVER...**

- ⊘ Never modify or remove a guard.
- ⊘ Never use electrical equipment in wet or damp locations unless the equipment was designed to be used there. Always use a ground fault circuit interrupter (GFCI) in damp areas.
- ⊘ Never use equipment that you know is damaged.
- ⊘ Never leave an electrical panel door off or open.

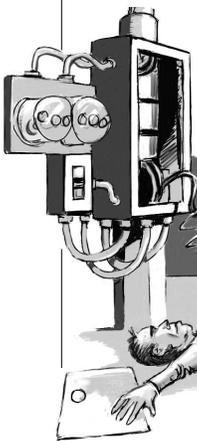
# Responding to an Electrical Emergency

**Prompt  
action  
can save  
lives.**

## Electrical Injuries

Move the victim away from power safely...

**Never touch a person who is in contact with a source of electricity.**



- ⚡ If possible turn off the power before touching the victim.
- ⚡ If you can't turn the power off, use a nonconducting tool, such as a rope or wooden stick, to move the person.
- ⚡ Make sure you don't complete a circuit between two wires or between one wire and the ground, while moving a victim.

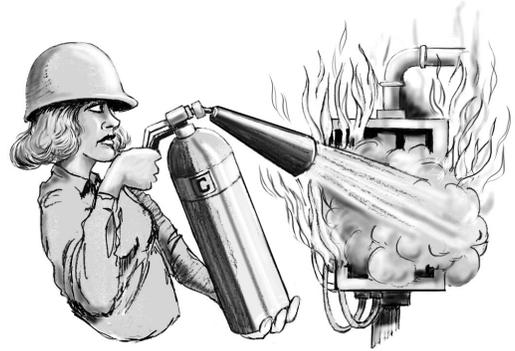
⚡ If the victim is touching a power line, stay clear and call for help.

**After the victim is away from the power source...**

- ⚡ Check breathing and pulse. Give rescue breathing or CPR if necessary and if you've been trained. Otherwise, get immediate medical help.
- ⚡ Continue rescue breathing or CPR until medical help arrives.
- ⚡ Treat minor burns at the point of contact with cool water, then cover with a clean, dry cloth.
- ⚡ Cover serious burns with a sterile, dry cloth and get immediate medical attention.
- ⚡ Never use ointment, ice or butter on a burn.
- ⚡ Never try to remove clothing from burned skin.
- ⚡ Treat victim for shock by keeping him or her lying down with feet elevated until help arrives.

## Electrical Fires

- ⚡ Use a class C fire extinguisher on small electrical fires.



**Never use water on an electrical fire**

- ⚡ If the fire is large or growing rapidly, follow your company's plan for evacuation.

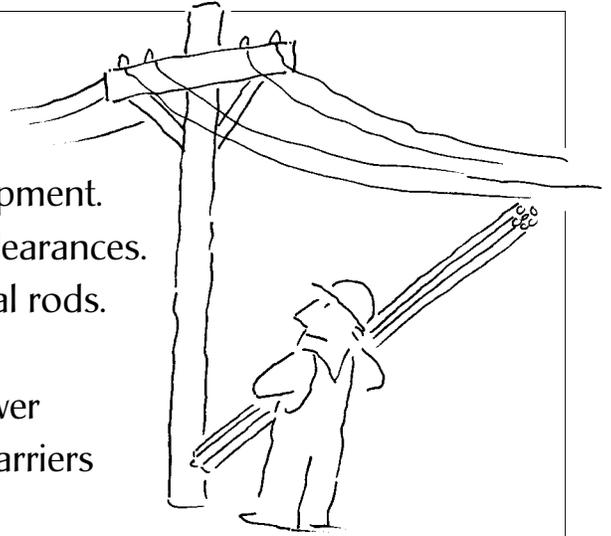
## Preparing for Emergencies

- ⚡ Know your worksite's emergency exits and escape routes.
- ⚡ Know the location of fire extinguishers and posted emergency phone numbers.
- ⚡ Take a course in CPR—you could save a life.

# Working Near Overhead Power Lines

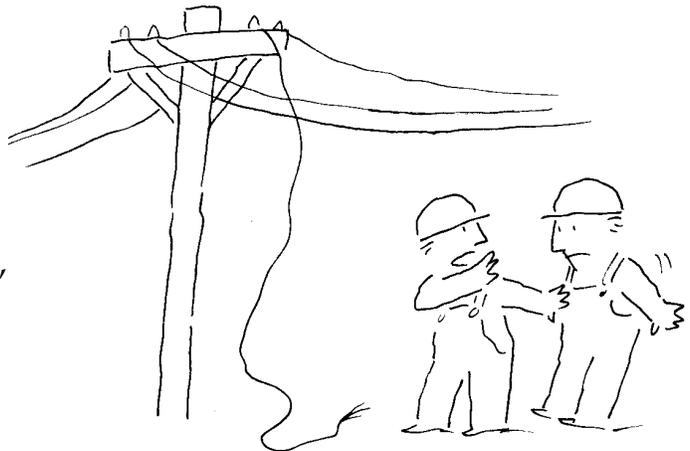
## This checklist could save your life...

- ✓ Estimate clearances from the lines to the highest possible part of your vehicle or equipment.
- ✓ Follow your company's guidelines for safe clearances.
- ✓ Be careful when handling long pipes or metal rods.
- ✓ Use ladders with nonconductive rails.
- ✓ If you need extra protection, contact the power company or facility owner, who will install barriers or de-energize the line.
- ✓ Make sure workers standing on the ground do not touch vehicles or equipment.
- ✓ If a vehicle or other equipment is grounded, make sure workers stay several feet away from the grounding location.



## If a live wire falls...

- ✓ Stay away from it and call for help.
- ✓ If the wire hits your vehicle, stay inside.
- ✓ If the vehicle catches fire, jump out, being careful not to touch the vehicle and the ground at the same time.





# Eight Steps to Lock Out Hazardous Energy

- 1. Think, plan and check.** 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. Communicate.** Tell affected employees you'll be locking out the equipment 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. Drain or bleed hydraulic and pneumatic lines. Lower suspended parts to rest positions.
- 5. Lock out all power sources.** Use a lock designed only for this purpose. Each worker should have a personal lock.
- 6. Test operating controls.** Turn on all controls to make sure the power doesn't go on.
- 7. Turn controls back to "off."**
- 8. Perform necessary repairs or maintenance.**

**After maintenance is finished, and before restarting equipment:**

- Remove tools.
- Reinstall machine guards.
- Make sure workers are a safe distance away while restoring energy.
- Notify others that the machines are back in use.

# How Noise Affects Hearing

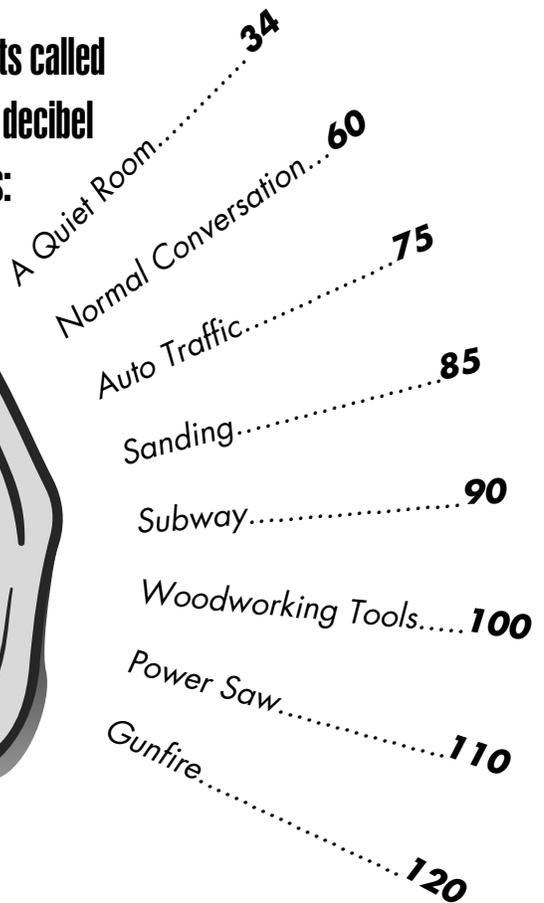
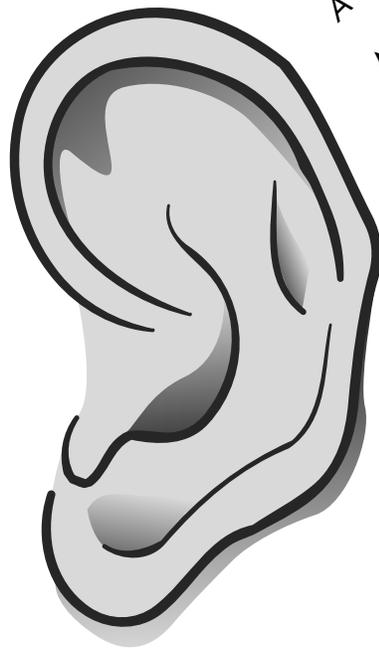
Your ear is a delicate instrument. Tiny “hair cells” in the inner ear vibrate when sounds reach them. Hair cells relay sound to the brain through the auditory nerve.

Loud or frequent noises damage the hair cells. Over time, excessive noise may cause the cells to die. Then the auditory nerve cannot pick up the sound and relay it to the brain.

Very loud noises, such as jet engines and gunfire, can damage hearing very quickly.

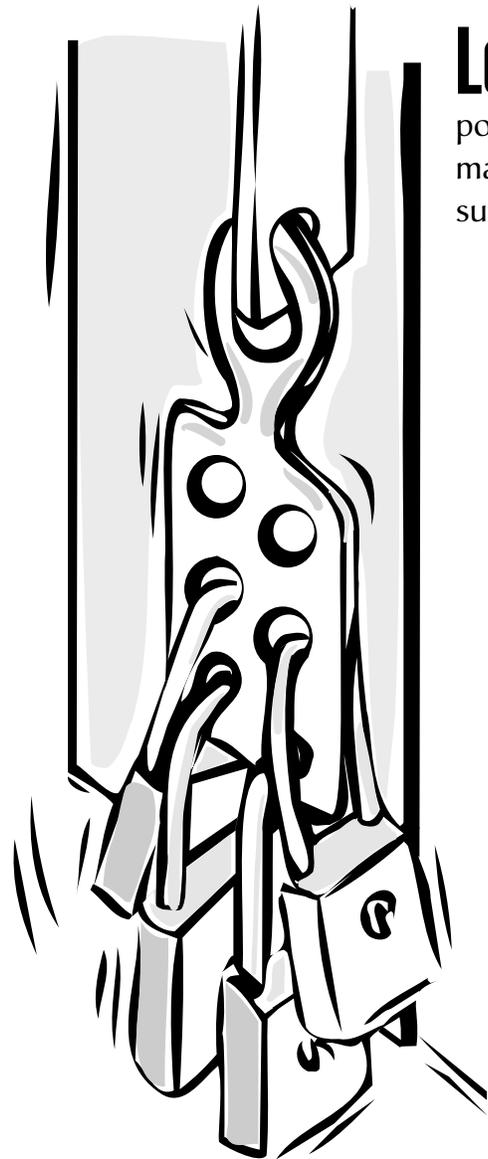
Other noises damage only after you’ve been around them for hours. A noise that is 85 decibels won’t hurt you in the short run, but if you’re around it for eight hours or more, you need hearing protection.

**Noise is measured in units called decibels. Here are some decibel levels of common noises:**



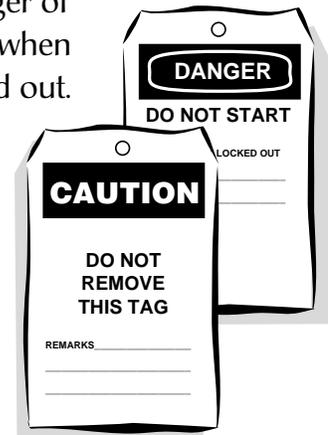
**Always wear hearing protection for loud noises such as gunfire, or prolonged noises, such as shop tools and machinery.**

# Lockout/Tagout: De-Energize for Safety



**Lockout:** the use of a special lock and system to prevent power from being accidentally turned on during equipment maintenance or repair. This may be electrical or other power such as hydraulic power, compressed air or coiled springs.

**Tagout:** the use of a special tag to warn workers of the danger of starting the equipment, when equipment can't be locked out.



## When a lockout is in process...

-  Never remove a lock without authorization.
-  Never turn on a machine during a lockout.
-  Never operate a machine that has been tagged.
-  Stay clear of locked or tagged machinery until you are notified that the power is back on.
-  After a lockout, make sure all guards are back in place before operating equipment, and all tools removed from the machinery.

# Slips, Trips and Falls

## Avoid slips and trips...



- ⌚ Make sure walkways and stairs are well lit.
- ⌚ Look before you walk—make sure your pathway is clear.
- ⌚ Wear slip-resistant, well-fitted footwear.
- ⌚ Clean up debris after each job and report accidental spills immediately.
- ⌚ Secure wires, cords and cables away from walkways.
- ⌚ Use safety cages and fall restraint devices when available.
- ⌚ Walk, don't run!

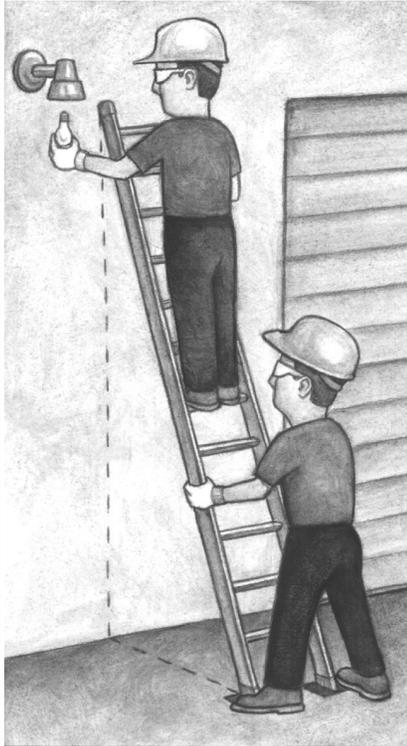
## Use ladders safely...

- ⌚ Use the 4-to-1 ladder rule—set the base of the ladder one foot away from the wall for every four feet of ladder height.
- ⌚ Tie off the ladder or have someone support the base.



- ⌚ Never use the top two rungs of a ladder.
- ⌚ Never over-reach, especially while on a ladder.

# Working Safely With Ladders



*Before you climb, check these basic rules for ladder safety...*

## Stepladders

- Make sure the spreaders are locked open before climbing.
- Make sure nearby doors are locked or walkways barricaded to prevent collisions.
- Never overreach while working on a stepladder. Move the ladder instead.
- Never climb above the second rung from the top.

## Straight Ladders

- Always use the 4-to-1 rule: Position the base of the ladder one foot out from the wall for every four feet of the ladder's height up to the support point.

**Example:** The base of a 16-foot ladder should be four feet out from the wall.

- A straight ladder should extend at least three feet past its support point.
- Tie down your ladder as close to the support point as possible.
- Use only straight ladders that have properly functioning safety feet.
- Never climb past the third rung from the top on a straight ladder.
- Never overreach: the trunk of your body should not extend past the side of the ladder.

## All Ladders

- Always wear slip-resistant footwear.
- Keep the ladder rungs free of oil and grease.
- Always go up and down facing the ladder, holding on with both hands.
- While working, hold on to the ladder with one hand at all times.
- Use a tool belt or a bucket attached to a hand line to pull tools up.
- Never use a metal ladder when working with electrical current.

**Before climbing any ladder, check its condition...**

- Nuts and bolts tight?
- Rungs secure?
- Spreaders working?
- Safety feet working right?

# Watch Your Step on Scaffolds

## Use a scaffold rated for the work you're doing.

- ➔ A light-duty scaffold for two or three people and hand-tools.
- ➔ A medium-duty scaffold for workers, tools and materials.
- ➔ A heavy duty scaffold for stored materials.

## Set it up right...

- ➔ Lay floor planks tightly with no space between them. Planks should be the same size and thickness.
- ➔ Plank ends should extend six to 12 inches from the edge of the scaffold.
- ➔ Platforms six or more feet above the ground must have top rails, midrails and toeboards on all open sides and ends.
- ➔ Always replace guardrails that you removed to load materials.
- ➔ Make sure wheels are locked on wheeled units.
- ➔ Use a ladder—not the scaffold's cross-braces—to climb onto the scaffold.
- ➔ Use correct procedures when anchoring suspended scaffolds.
- ➔ Always use a fall-arrest system when working on suspended scaffolds.  
A fall-arrest system includes full-body harness, lanyard, rope grab and an independent vertical lifeline anchored to the top of the structure.

## Avoid dangerous conditions...

- ➔ Avoid doing scaffold work during bad weather or extreme temperature conditions.
- ➔ Be sure that operators working nearby know you'll be there.
- ➔ Set up barricades to keep vehicles from hitting the scaffold.
- ➔ When working under or near a scaffold, use a hardhat.

# Working Safely With Grinders

## Before You Begin...Ask Yourself:

- Is the grinder securely mounted to the bench or is the pedestal grinder on a steady surface?
- Is the grinding wheel securely mounted on the machine?
- Is the wheel right for the size and speed of the machine?
- Is the cover to the power transmission motor securely in place?
- Is the grinder connected to a working exhaust system?
- Are work rests adjusted properly? They should be slightly below the center of the wheel and to within an eighth of an inch of the wheel.
- Are you using the right type of wheel for the job? The wrong wheel could break, causing extreme hazard.

## How to Prevent Injuries...

- Make sure there is adequate light in your work area.
- Use guards or hoods that enclose most of the wheel surface.
- To prevent damage to new wheels, store them carefully in a dry area close to the grinding operation. Lift them carefully to avoid dropping or bumping.
- Never use a damaged or defective wheel.
- Make sure you are properly trained before using the wheel.
- After mounting a wheel or brush and replacing the guard, stand to one side and allow the grinder to run for a minute to make sure the wheel is safe.
- Wait until the grinder has come to full speed before you begin using it.
- Avoid loose hair or clothing such as scarves, dangling jewelry, ties or loose sleeves.
- Use personal protective equipment: safety glasses with side shields and full face shields, gloves, dust mask and hearing protection as required.

## Watch Out for These Hazards...

- Hand injury as a result of trying to adjust the wheel or the rests while the wheel is in motion.
- Eye injury from particles of metal loosened during operation, or from a wheel disintegrating due to defectiveness or excessive speed.
- Respiratory disease from inhaling dust and fumes.

# Welding Hazards

## Common Welding Hazards...

- ◆ Burns
- ◆ Electrical shock and burns
- ◆ Eye injury from looking at the arc without eye protection
- ◆ Lung irritation or poisoning from toxic gases or fumes from the welding operation

## To Protect Yourself—and Others—From Hazards...

- ◆ No matter how small the job, wear all the protective clothing required for welding.
- ◆ Inspect all equipment and fuel cylinders used before beginning a job.
- ◆ Keep extinguishers or other firefighting equipment at hand during welding.
- ◆ Shield the welding area to prevent injury to the eyes of other workers.
- ◆ Avoid welding drums or other containers that held flammable materials, unless those containers have been thoroughly cleaned.
- ◆ In electric arc welding, make sure the electrode stays clear of the workpiece.
- ◆ To avoid hazardous fumes and gases, remove rust inhibitors, paints, degreasers or other coatings from metals to be welded. And be sure to have an appropriate ventilation system when working in an enclosed area.
- ◆ Use a spark lighter to ignite flames, not a cigarette, match or cigarette lighter.
- ◆ Keep oil and grease away from all oxygen valve connections, hoses and gauges.
- ◆ In oxyfuel gas welding in a confined space, keep the gas cylinders outside the area and fastened securely. Shut off gas supply when leaving for break.
- ◆ Before leaving a job, make sure welded material has cooled, all hoses depressurized and electrical power is shut off.



# Guard Against Machine Injuries

**Safety guards are meant to protect you.**

## **Kinds of guards...**

- enclosure guards
- remote control
- removal devices
- two-handed tripping devices
- interlocking devices
- electronic safety devices
- moving barriers

## **When operating machines...**

- Never remove or bypass a guard or other safety device.
- Never operate a machine if a guard is missing, modified or not working right.
- Make sure guards removed for maintenance are replaced and working right before operations resume.

## **Stay safe and productive...**

Never remove a guard to increase your productivity. If you believe a guard is making it hard to meet your production goals, talk to your supervisor. Don't sacrifice your safety to get a job done faster.

**Work with guards, and they'll work for you!**

# Watch Out for Pinch Points

*A pinch point is any point where you can catch a part of your body between moving parts of machinery, equipment or materials.*

## Protect yourself from pinch points...

- Machine guards are designed to protect you from pinch points. Always keep them in place, even if it slows down productivity. Replace them if they malfunction.
- Always use machinery correctly. Shut a machine down before trying to correct a malfunction or jam and be sure to use the correct lockout/tagout procedures.
- Use push-sticks and jigs whenever possible, rather than your fingers, to position materials being machined.
- Follow safety procedures when moving heavy or bulky material.
- Avoid horseplay on the job.
- Avoid loose clothing or jewelry that can get caught in pinch points. Keep long hair restrained.

**Above all, stay alert.  
Carelessness around pinch points can be deadly.**

# Basic Rules for Hand Tools

**At work or at home, the rules for hand tools are the same...**

## **ALWAYS...**

 Know the purpose of each tool, and use it only for that purpose.

 Use the right size tool for the job.

 When working on ladders or scaffolding, make sure tools are secure. A falling tool is a dangerous object.

 When carrying tools, point cutting edges toward the ground.

 Wear appropriate personal protective equipment when working with tools.

 Inspect tools before each use and replace or repair if worn or damaged.

 Clean tools after every use.

 To prevent rust, lightly oil metal tools and store them in a clean, dry place.

 Keep cutting edges sharp.

## **NEVER...**

 Never use any tool unless you are trained to do so.

 Never test a cutting edge with your fingers—use scrap material instead.

 Never put sharp or pointed tools in your pockets.



**SAFETY HAZARDS**

# Basic Rules for Portable Power Tools

**Even small power tools can cause serious injury—on or off the job.**

## **ALWAYS...**

- ☞ Use your tool only for what it was designed to do.
- ☞ Know how to operate the tool before you try to use it.
- ☞ Inspect tools before each use and replace or repair if parts are worn or damaged.
- ☞ Make sure all nuts, bolts and other moveable parts are tightened before using the tool.
- ☞ Before plugging in or unplugging tools, be sure the power switch is turned to "OFF."
- ☞ When working on ladders or scaffolding, rest power tools on a flat surface or place them in a bin secured to the ladder. Falling tools are dangerous.
- ☞ Use a ground fault circuit interrupter when working with power tools.
- ☞ Wear appropriate personal protective equipment.

## **NEVER...**

- ⊘ Never use any tool unless you are trained to do so.
- ⊘ Never unplug a tool by pulling on the cord.
- ⊘ Never clean or repair a tool while the power is connected.
- ⊘ Never wear rings, jewelry or loose clothing when operating power tools.



# The Hazards of Heat

**Heat stress occurs when heat causes your body temperature to rise above normal. Heat stress can cause:**

- ✓ muscle cramps
- ✓ weakness
- ✓ disorientation
- ✓ death, if body temperature remains high

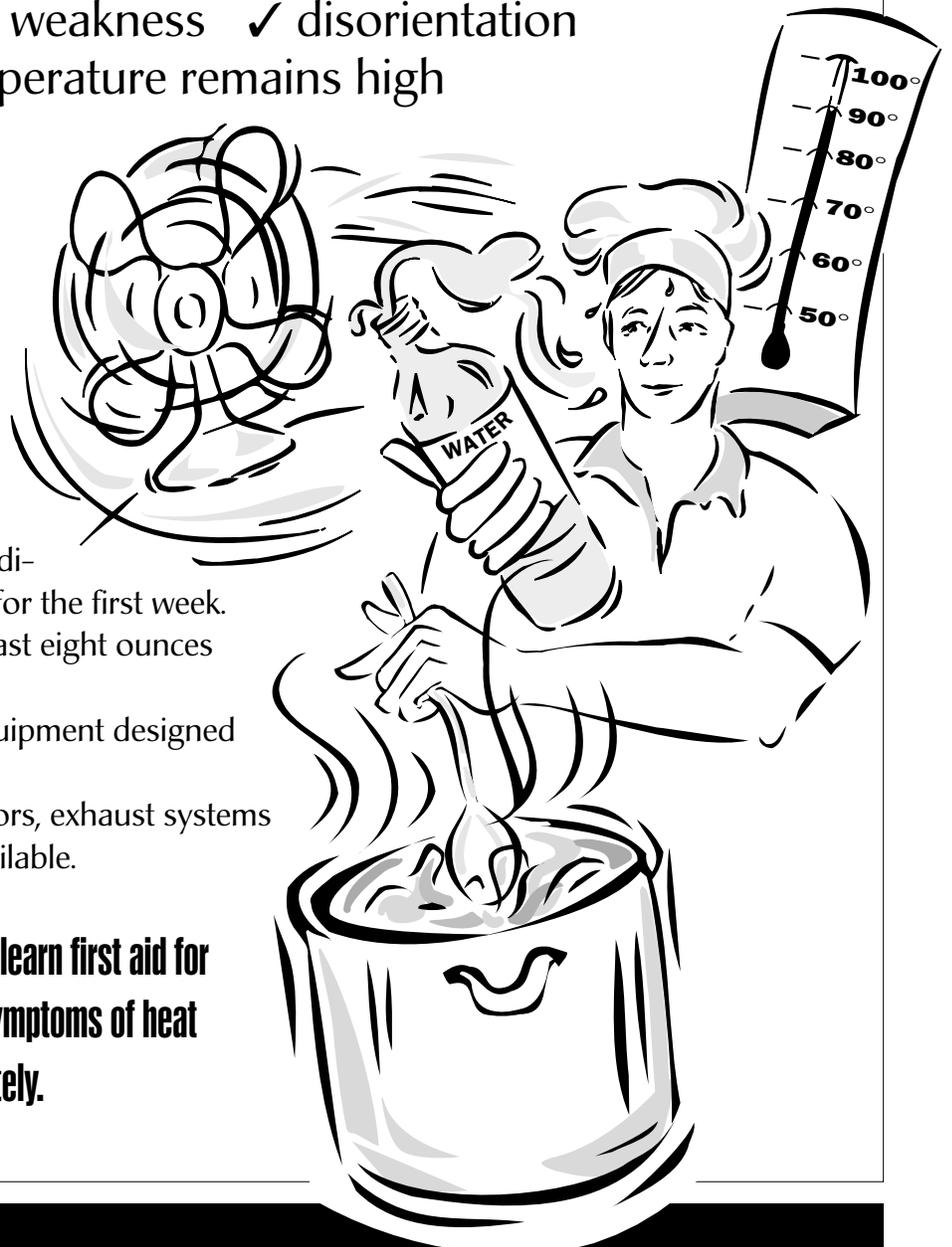
**Be on guard against heat stress if you work in hot weather or hot environments, such as:**

- foundries
- kitchens
- laundries

**To prevent heat stress...**

- Adapt to working in hot conditions gradually—take it easy for the first week.
- Drink water frequently—at least eight ounces every 20 to 30 minutes.
- Wear personal protective equipment designed for hot environments.
- Always use the fans, ventilators, exhaust systems and heat shields that are available.

**If you work in a hot environment, learn first aid for heat stress. If someone shows symptoms of heat stress, get medical help immediately.**



# Preventing Repetitive Motion Injuries

If you do the same hand movements over and over on the job, you may suffer repetitive motion injuries such as carpal tunnel syndrome. You may experience:

- aching wrist
- numbness in fingers
- hand weakness
- pain extending up the arm

## Repetitive motion injuries are a problem for...

- painters
- textile workers
- word processors
- cashiers
- electronics assemblers
- others who work with their hands.

## What can you do about repetitive motion injuries?

### *Position your hands correctly...*

- Adjust your work so you can keep your wrists and elbows straight.
- Use hand tools that are the right width, size and shape for you.

### *Give your hands a break...*

- Pause and shake out your hands. Let them dangle.
- Do hand exercises.
- Wear a hand and wrist brace.

## Hand Exercises

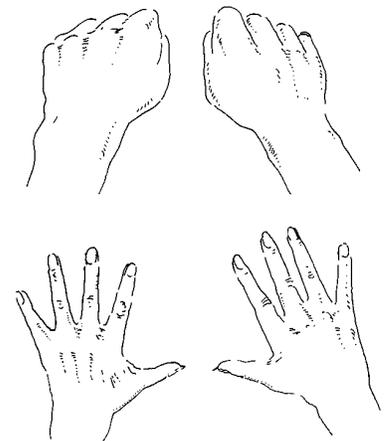
### Wrist Rotation

Make a fist and rotate your entire hand from the wrist in one direction. Repeat 15 times. Change directions and repeat 15 times. Do these same rotations again with your fingers extended.



### Hand Stretch

Make a fist, then extend your fingers as far apart as possible. Hold for 10 seconds. Relax. Repeat five to 10 times until hands feel relaxed.



**Protect your hands from repetitive motion injury. The best time to start is before symptoms begin.**

# The Hazards of Cold

**Hypothermia occurs when your body temperature drops below normal. Watch out for these symptoms:**

- ✓ uncontrollable shivering
- ✓ weakness
- ✓ drowsiness
- ✓ disorientation
- ✓ slurred speech
- ✓ unconsciousness

**Protect yourself from hypothermia...**

- Dress in layers, so you can adjust what you're wearing to the temperature.
- In cold weather, wear silk, polypropylene or lightweight wool next to your skin, and wool layers over your undergarments.
- For outdoor activities, wear outergarments of wind- and water-resistant fabrics, such as nylon.
- Always wear a hat, gloves and a scarf in cold weather.

**Hypothermia can happen even in warm weather if you are cold and wet too long...**

- Always take along a dry set of clothing when you are working (or playing) outdoors.
- Always pack rain gear, no matter what the forecast.
- Wear waterproof boots in damp or snowy weather.

**Hypothermia can sneak up on you...**

- Use the buddy system when working outdoors in cold weather.
- Check each other for signs of hypothermia.
- If that's not possible, let someone know where you'll be and when you expect to return.

**When hypothermia strikes, get indoors as soon as possible. Change into warm, dry clothes and sip warm drinks (not alcohol). Be sure to seek medical attention.**



# The Hazards of Fatigue

**Working when you are tired is no joke.  
Fatigue can cause lowered productivity, accidents and even death.**

*Fatigue can be caused by...*

- too little sleep
- boredom
- physical and emotional problems
- sleep disturbances caused by working irregular shifts

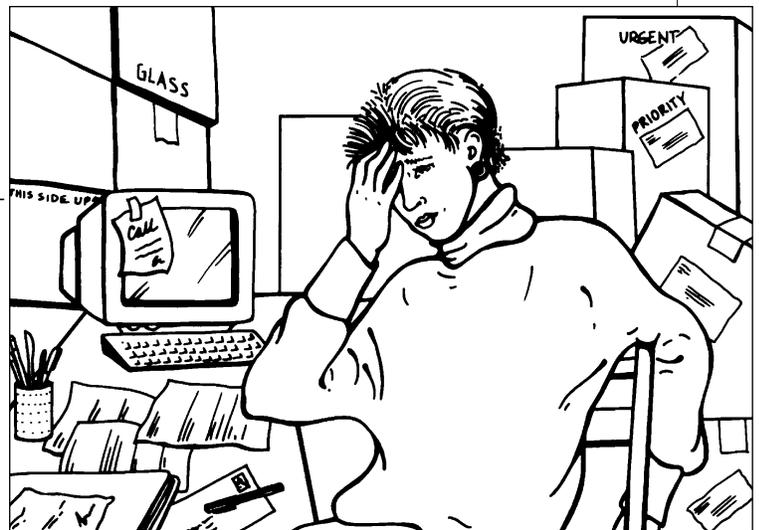
*To avoid fatigue...*

- Go to bed at the same time every night.
- Don't drink alcohol or caffeine in the evening.
- Don't smoke—it causes sleep problems.
- Exercise regularly—but not before bedtime.
- Get help if you have sleep problems.
- Vary your work tasks as much as possible so you don't get bored.
- Eat a good breakfast and avoid heavy lunches.
- Save partying for weekends.

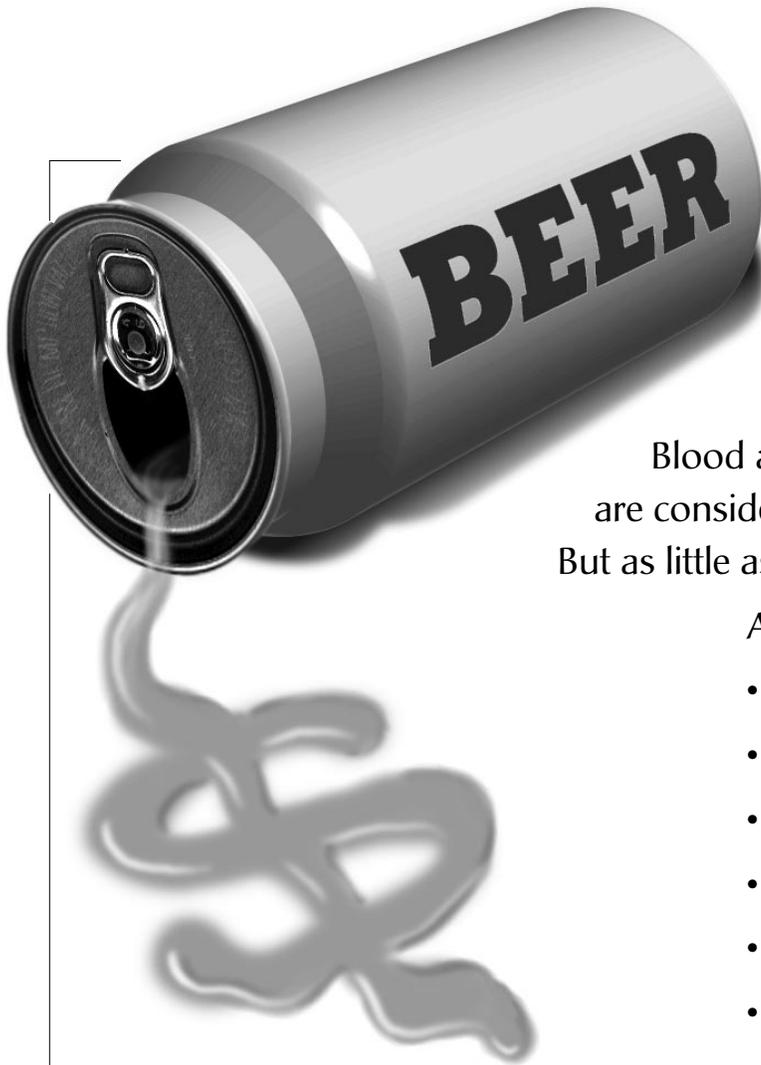
*If you get fatigued...*

- Get up and walk around.
- Splash cold water on your face, the back of your neck or the inside of your wrists.
- Try turning up the lights, turning on the radio, opening the window, or moving to a slightly different location.

**Don't ignore persistent fatigue. See your doctor if you're always tired.**



# Alcohol & Other Drugs Affect Safety



**Think you can drink or use drugs and still do your job well? Read on...**

Blood alcohol concentrations of .08 or more are considered unsafe for driving in most states. But as little as .04 will affect your job performance.

**Alcohol and many drugs cause**

- **slower reaction time**
- **increased injury rates**
- **increased errors**
- **carelessness**
- **fatigue**
- **poorer problem-solving skills**
- **lower productivity**
- **more absences**

Drinking can affect your health and safety, and the health and safety of those you work with. It can also cost you your job.

**Think you might need help? See your employee assistance professional or check your phone book's community resources pages under "Alcohol and Drug Abuse." You'll find the help you need.**

# Signs of Alcohol or Drug Abuse

It's not always obvious when someone has become chemically dependent. Here are some signals that you or someone you work with may have a problem with alcohol or other drugs.

- ⚠ Trying and failing to cut back.
- ⚠ Hiding the evidence of drinking or using other drugs.
- ⚠ Feeling sorry about things that happened while "under the influence."
- ⚠ Not being able to enjoy an event without using alcohol or other drugs.
- ⚠ Neglecting responsibilities.
- ⚠ "Blackouts," or memory lapses.
- ⚠ Being late or absent frequently.
- ⚠ Drinking or using when alone.
- ⚠ Drinking much more than other people at a social gathering.
- ⚠ Mental confusion, memory loss.
- ⚠ Carelessness on the job.
- ⚠ Frequent colds or flu.
- ⚠ Money or legal problems.
- ⚠ Lower productivity at work.
- ⚠ Frequent accidents.

**Alcohol and drug abuse affect not only the user, but those who work with the user as well.**

Alcohol and drug abusers need help, not punishment. If you or someone you work with needs help with a substance abuse problem, try the organizations listed in the community resources pages of your telephone book under "Alcohol and Drug Abuse." Or find out if your company has a substance abuse recovery program.

# Protect Yourself Against Violence in the Workplace

## First, Be Prepared...

- Post emergency police or security numbers near every phone.
- Know how to use your alarm systems.
- Develop a “danger plan” with your coworkers, including a danger signal.

## If Someone Threatens You...

- Stay calm and cooperate with the person if possible.
- Use the prearranged danger signal if possible.
- If you are attacked, and the attacker has no weapon, run away and scream to get attention.

## If Someone Else Is Threatened...

Get out of the way and get help as soon as possible.

## Recognize Potential Danger...

Take seriously any employee who

- Makes threats or talks about getting even.
- Gets angry easily.
- Talks about using a weapon.

*Share your concerns with your supervisor.*

## Safety After Work...

- Call your family and tell them what time you are leaving work.
- When working late, ask security to escort you to your car.
- Avoid little-used stairways or other areas.
- Park in a well-lit area. Be ready with your keys out.
- Walk in groups to cars whenever possible.
- Don't get into an elevator with a suspicious person. If threatened or attacked in an elevator, punch all the floor buttons and yell each time the door opens.



*Report any suspicious person immediately.*

# Characteristics of a Defensive Driver

Are you a defensive driver? No special training is required, just...

## 1. Knowledge.

You know

- how to recognize hazards and avoid collisions
- the traffic laws in your area
- how to maintain your vehicle safety

## 2. Alertness.

You pay attention to

- traffic conditions
- your own mental and physical condition
- what's going on to the front, side and rear of your car

## 3. Foresight.

You anticipate the unexpected by

- scanning the road as far ahead as possible
- keeping your car well maintained
- never assuming the other driver will do the right thing
- always wearing your safety belt

## 4. Judgment.

You always

- keep your emotions under control
- resist the temptation to make risky maneuvers
- pass only when safe
- remain courteous, even when other drivers are not

## 5. Skill.

You know how to

- operate a vehicle properly and safely
- make safe and legal turns and passes
- perform simple emergency repairs, like changing a tire

Good DRIVER



# Blood Alcohol Concentration and You

**Blood alcohol concentration (BAC) is a measure of the level of alcohol in your blood.**

- If you have .08 to .10 BAC, you are legally too drunk to drive in most states.
- As little as .04 can affect your ability to do your job safely.

## How Much Alcohol Is Too Much?

In safety-sensitive jobs, any alcohol is too much. Even one drink can put you over the BAC limit.

## Alcohol and Job Safety...

- Many government and private employers prohibit the use of alcohol within four hours of performing safety-sensitive tasks.
- When safety is an issue, you can be tested without warning.

## What Happens If You Test Positive?

- You may be prohibited from doing your job until your BAC reaches acceptable levels.
- You may be required to be tested regularly for alcohol abuse.
- You may be required to seek treatment for alcohol abuse.

## Don't Let Alcohol Ruin Your Life...

- Stay sober on the job.
- If you need help, see your employee assistance professional or check your phone book's community resources pages under "Alcohol and Drug Abuse."

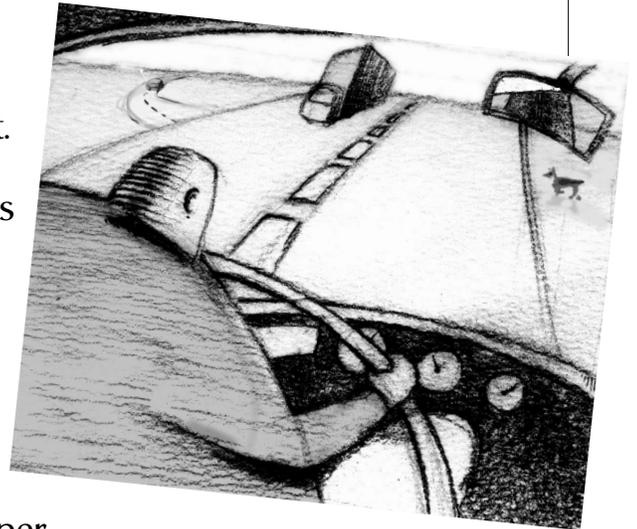
**Your company values your contribution as a sober employee.**

# The Golden Rule of Safe Driving

**“Set a good driving example  
even if others don’t.”**

## *Putting it into practice...*

-  Use your signals—even when others don’t.
-  Be considerate when making lane changes and passing people.
-  Cooperate when someone wants to pass you.
-  Maintain the speed limit. If others cut in front of you, drop back to maintain a proper following distance.
-  Don’t fight tailgaters. Just get out of their way.
-  Respect the elderly driver or those who may drive slowly because of a disability.



**When you use the golden rule, you make the road safer for everyone.  
And you feel good, knowing you’ve done the right thing.**

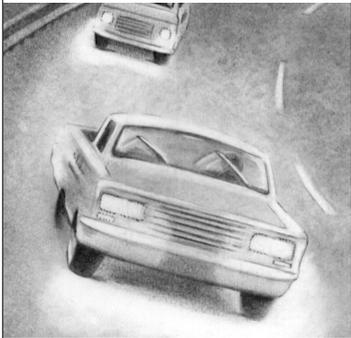
# Driving in Bad Weather

Here's how to handle the common hazards of driving in rain, fog, snow and ice...



## *Slippery roads (wet or icy)...*

- Stay below posted speed limits.
- To avoid hydroplaning on wet roads, try to drive in the tracks of the car in front of you.
- Avoid braking heavily on wet or icy roads.
- Watch for icy patches on bridges and in the shade.
- If you skid, take your foot off the gas and turn in the direction you want the car to go. Don't use the brake.



## *Poor visibility...*

- Reduce your speed so you can stop in whatever distance you can see ahead. Use your flashers if you are going really slowly. Pull over if it's dangerous to drive.
- Remember to use your wipers.
- Use lowbeams when visibility is a problem, both day and night.
- Wear sunglasses when there is glare from snow.
- If snow or ice builds up on your windshield, stop and clean it off.



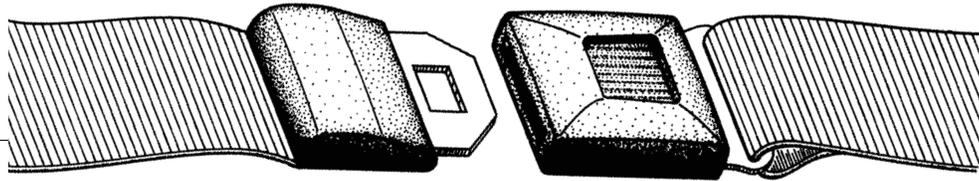
## *Rain hazards...*

- Stay out of puddles. They can hide potholes and flood your brakes. If your brakes do get flooded, dry them by driving with the brake pedal down until they start working again.
- If spray from an oncoming vehicle blinds you, grip the wheel firmly, stay off the brake and be ready to brake when the view clears.

## *Before you start...*

- Check the weather forecast and postpone your trip if necessary.
- Make sure your car is well maintained: wipers in good condition, fluid levels full, tires properly inflated and worn tires replaced.
- Don't drive when you are tired.

# Safety Belts Can Save Your Life



## **Don't let these excuses keep you from buckling up:**

### **Safety belts are uncomfortable.**

*Newer safety belt design allows for total freedom of motion while driving.*

### **It's better to be thrown out of a car than be trapped by the safety belt.**

*People who are thrown from cars are 25 times more likely to be killed than if they had been held securely in their seats. Just being thrown around inside the car can kill or injure.*

### **I only drive around town—I'm not at risk.**

*Most car accidents happen within seven miles of home—and 80 percent of all serious injuries and deaths happen at less than 40 miles per hour.*

### **I'm a good driver. I won't get in an accident.**

*Weather, road conditions and other drivers can cause even a superb driver to be involved in a crash.*

**When it comes to risking your life by not wearing a safety belt, there's no good excuse. Buckle up to protect yourself—and your loved ones.**

# Choosing and Using Respiratory Protection

## Always use the right respiratory protection for the job.

### Filtration respirators

- Filter out dusts, fumes and mists.
- Are usually disposable dust masks or respirators with disposable filters.
- Should be replaced when they become discolored or clogged.

### Air-Purifying Respirators

- Contain replaceable chemical cartridges or canisters that take the contaminant out of circulation.

- May be color coded to help you select the right one.
- May require more than one cartridge to protect against multiple hazards.

### Air-Supplying Respirators

- Provide clean air from an outside source when the air around you is simply too dangerous to breathe.
- May be self-contained—a portable air tank—or attached to an air hose.



## Using Respirators Always...

- Use the right respirator for the job.
- Make sure the face mask fits properly.
- Keep your respirator clean and well maintained.
- Follow safety guidelines.
- Replace filters or cartridges as needed.



# Choosing and Using Hearing Protection

## Hearing protection comes in three styles

### Earplugs...

- 👂 fit inside the ear canal
- 👂 cut noise by as much as 30 decibels
- 👂 may be disposable or reusable, custom-fitted or one-size-fits-all
- 👂 may be made of foam, silicone, rubber or plastic
- 👂 are comfortable in hot weather
- 👂 are inexpensive

### *but...*

- 👂 may be hard to fit

### Earmuffs...

- 👂 cut noise by as much as 25 decibels
- 👂 are easy to put on and take off
- 👂 come in specialized forms for high-voltage work or filtering out only hazardous noises
- 👂 may be worn with earplugs for extremely high noise levels

### *but...*

- 👂 are bulky
- 👂 may be uncomfortable in hot weather

### Canal caps...

- 👂 are soft pads on a headband
- 👂 seal the ear canal without actually entering it
- 👂 are comfortable, cool and light

### *but...*

- 👂 may not completely seal the ear canal
- 👂 are less effective than earplugs or earmuffs

### Never try to protect hearing with...

- 👂 stereo headphones
- 👂 cotton wads

### Treat your hearing protection right...

- 👂 Use the right protection for your workplace.
- 👂 Use and maintain your hearing protection according to the manufacturer's recommendations.
- 👂 Use it whenever noise level is high—not just sometimes.

# Respiratory Hazards

**Know the two basic kinds of respiratory hazards.**

## **Particles...**

*Tiny pieces of matter that may or may not be visible. They include:*

- Dusts—dry particles such as sawdust.
- Mists—liquid particles such as spray paint.
- Fumes—tiny metal particles given off when a substance is burned.

## **Gases...**

*Substances that are dissolved in the air. You can't see them and may not even smell them. Gases include vapors given off by liquids when heated or left at room temperature.*

***Respiratory hazards can irritate or damage***

- lungs
- nasal passages
- other organs

***You can't always see materials in the air that are dangerous to inhale. To protect yourself...***

- Know what kind of respiratory hazard you're exposed to.
- Use the right kind of personal protective equipment for each hazard.

# Hearing Hazards



**Noise can rob you of your hearing.  
Watch out for two kinds of hearing hazards:**

**Very loud noises...**

These can damage hearing quickly.

*They include such noises as*

- ◆ gunfire
- ◆ jet engines
- ◆ automobile horns
- ◆ jackhammers



**Moderately loud noises  
over a long period of time...**

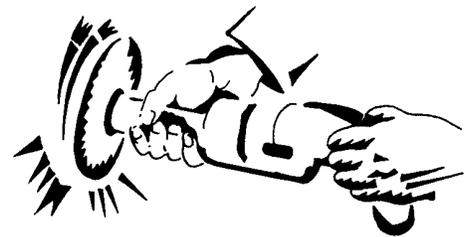
These can damage hearing if you are around them for four to eight hours, or if you are around them often.

*They include many power tools involved in*

- ◆ sanding
- ◆ woodworking
- ◆ drilling

*They also include*

- ◆ loud music
- ◆ subway or railroad noises
- ◆ some loud vacuum cleaners and other machinery



**What you can do...**

- ◆ Find out the noise level of your workplace—anything over 85 decibels requires protection.
- ◆ Protect yourself with earplugs or earmuffs.
- ◆ Give yourself quiet time each day.
- ◆ Get your hearing tested regularly.

**Don't wait until you notice hearing loss. By then it's too late.**

# Eye Hazards



## Watch out for common eye hazards!

- ☹️ flying particles from grinding, sawing, etching and other machine operations
- ☹️ sparks from welding and other operations
- ☹️ fumes and splashes from molten materials and chemicals
- ☹️ harmful light rays from arc and electrical welding, furnace operations and acetylene torches

## Use the right eye protection for your job...

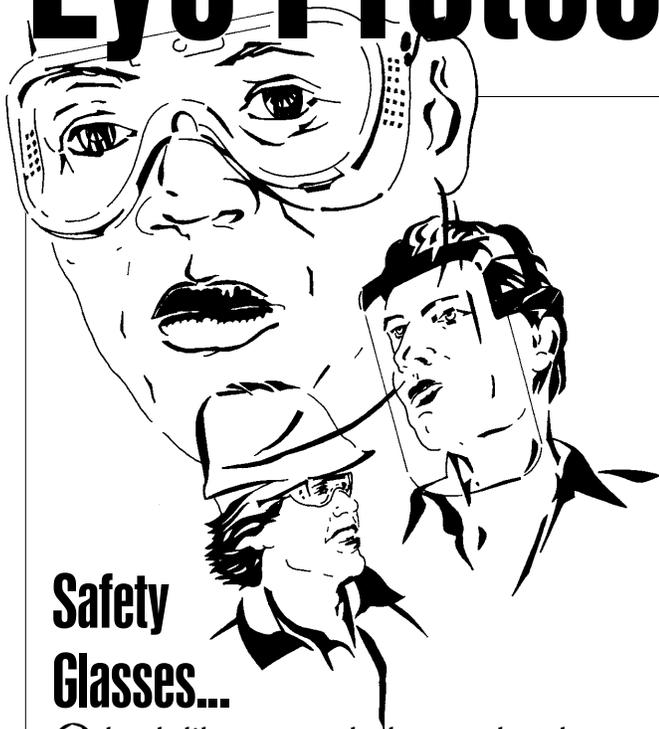
- ☹️ ANSI approved
- ☹️ properly fitted
- ☹️ in good repair

*Never depend on regular glasses or contact lenses to protect you*

## Eye Safety Checklist

- ☹️ Be alert to eye hazards at your worksite.
- ☹️ Follow established safety guidelines.
- ☹️ Learn first aid for eye injuries.
- ☹️ Know where all eyewash stations and emergency equipment are.
- ☹️ Get prompt medical attention for any eye injury.
- ☹️ Ask your supervisor if it's safe to wear contact lenses in your work area.

# Choosing and Using Eye Protection



## Safety Glasses...

- 🛡️ look like normal glasses, but have impact-resistant lenses
- 🛡️ have extra strong frames
- 🛡️ meet ANSI safety standards
- 🛡️ are available in prescription form
- 🛡️ may have side shields, cups or tinted lenses for added protection

## Safety Goggles...

- 🛡️ like safety glasses, are impact-resistant
- 🛡️ protect against hazards from many directions
- 🛡️ may have indirect ventilation to protect from splash hazards

## Face Shields...

- 🛡️ protect the face from chemicals, heat or glare
- 🛡️ do not protect the eyes—must be used with safety glasses or goggles
- 🛡️ may be worn with helmets when working with molten materials

## To Protect Your Eyes...

- 🛡️ Use the right eye protection at the right time.
- 🛡️ Never rely on regular glasses or contact lenses to protect your eyes.
- 🛡️ Never use face shields in place of safety glasses or goggles.
- 🛡️ Ask your supervisor if contact lenses are safe to wear at your worksite.
- 🛡️ Always keep your eye protection equipment in good repair, replacing if scratched or cracked.

**Don't take chances with your eyes. Use the right eye protection for your job.**

# Skin Hazards

## Skin irritants can be dangerous. They can cause...

- rashes
- pain
- chemical burns
- dryness and cracking

## Common Skin Irritants...

- solvents
- corrosives, such as acids and lye (sodium hydroxide)
- allergens, such as poison ivy
- petroleum products

## To protect your skin...

- Use personal protective equipment, such as work gloves, barrier creams and protective clothing.
- Wash up thoroughly after touching irritating substances.
- Read the label or MSDS before touching any substance.
- Keep your work area clean.
- Know where the nearest

showers, eyewash stations and emergency equipment are.

## If you're accidentally exposed...

- Get to the nearest running water and rinse the exposed skin for at least 15 minutes.
- Remove clothing the chemical has touched.
- If there is burning, blistering, swelling or itching, get medical help immediately.



# Choosing and Using **Work Shoes**

## Keep your feet injury-free with the right work shoes

### Steel-Reinforced Safety Shoes...

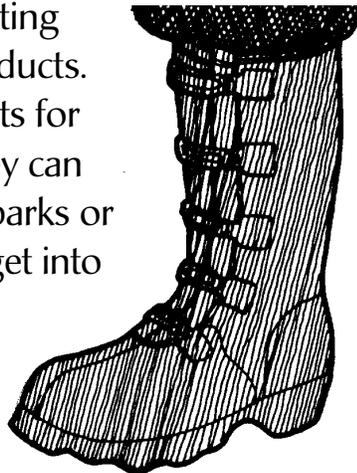
- 🕒 protect your feet from falling or rolling objects, cuts and punctures
- 🕒 have a steel-reinforced toe box
- 🕒 may have a steel, aluminum or plastic instep
- 🕒 may have special soles to guard against slips or electrical hazards

### Safety Boots...

*offer more protection against splashes or sparks.*

### Special kinds include...

- 🕒 Neoprene or nitrile boots for corrosives, caustics, cutting oils and petroleum products.
- 🕒 Foundry or "Gaiter" boots for welding operations. They can be removed quickly if sparks or hazardous substances get into them.
- 🕒 Electrical hazard boots, which are insulated against electricity.



### Using Protective Footwear...

- 🕒 Be sure you have the right footwear for your job.
- 🕒 Choose shoes that fit properly, to avoid tripping and stumbling.
- 🕒 Make sure your shoes meet ANSI standards.
- 🕒 Replace worn or damaged footwear as soon as possible.



# Hand Hazards

## PROTECT YOUR HANDS

### Your hands may be in danger if you...

- Use machinery and tools with moving or cutting parts.
- Use corrosive chemicals.
- Work with very hot or cold substances.
- Work with electrical hazards.
- Do work that involves repetitive motion, as in assembly line work, painting or keyboarding.

### ✓ ALWAYS

- Be alert to hand hazards before an accident can happen.
- Use push-sticks, guards, shields and other safety devices designed for your equipment.
- Use brushes, not hands, to wipe away debris.
- Inspect equipment and machinery to make sure it's in good operating condition.
- Disconnect power before repairing or cleaning machinery.
- Use the right personal protective equipment such as gloves, guards or barrier creams.
- Be sure your gloves are the right type and size for your job.
- To avoid overuse problems, use tools designed to keep wrists straight.

### ⊘ NEVER

- Never wear rings, jewelry or loose clothing when using machinery.
- Never take shortcuts with safety procedures.



# Choosing and Using Work Gloves

**The right gloves can protect you from injury on the job**

## Disposable Gloves...

- ① are usually lightweight plastic
- ① protect against mild irritants
- ① are used for food handling
- ① protect against disease-causing germs

## Fabric Gloves...

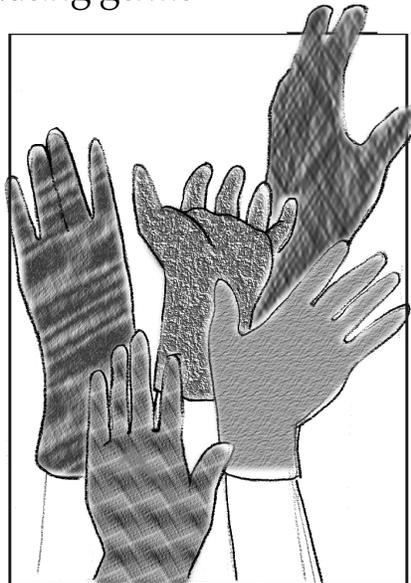
- ① are usually cotton or other fabric
- ① improve grip when handling slippery objects
- ① protect from mild heat or cold

## Rubber Gloves...

- ① may also be neoprene, polyvinyl or vinyl
- ① protect against corrosives such as organic acids and petroleum products

## Leather Gloves...

- ① protect against scrapes or sparks
- ① may be used with an insulated liner for electrical hazards



## Metal Mesh Gloves...

- ① protect from accidental cuts and scratches
- ① are used around cutting tools and other sharp instruments

## Aluminized Gloves...

- ① are made of aluminized fabric
- ① insulate hands from intense heat
- ① are used for working with molten materials

**Make sure your gloves fit right, are comfortable to wear, and are the right gloves for your job.**

# Choosing and Using Protective Headwear

## Hard Hats...

ARE YOUR BEST PROTECTION AGAINST MAJOR HEAD INJURY.  
THEY SHOULD BE ADJUSTED TO YOUR FIT.

- The crown straps fit over the top of your head to cushion impact.
- The adjustable headband holds the hat securely to your head.
- The chin or nape straps keep the hat from being knocked off.

**Use** a full-brimmed hat to protect against blows to the entire head, neck and shoulders.

**Use** a visored hat when working in confined spaces.

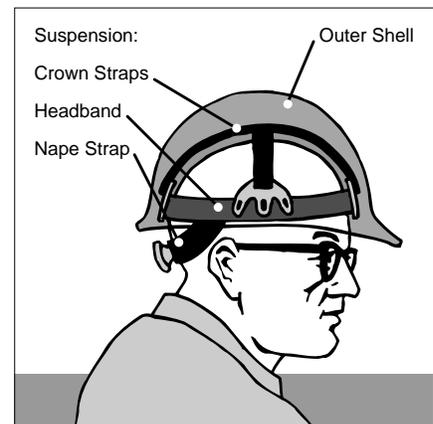
## Using Hard Hats...

### ✓ ALWAYS

- Adjust the straps of your hard hat to your own size.
- Keep your headwear clean and in good repair.
- Replace worn straps as needed.
- Check your hat for cracks before and after each use. Replace a hat that is cracked or has received a major impact.

### ✗ NEVER

- Never use paint or solvents on your hat—they can weaken its structure.
- Never use someone else's hat or give your hat to someone else to use.



## Bump Caps...

protect against minor blows only. Use them in confined spaces where there are no serious head hazards.

**NEVER** use a bump cap in place of a hard hat.

## Hair Covers...

keep hair from getting caught in moving machine parts. Usually fabric, they are adjustable and may have a front visor.

## Other Headwear...

may be necessary for special tasks.

**These include:**

- thermal liners for extremely cold temperatures
- lamp brackets for work in dark areas
- face shield mounts for use around flying particles



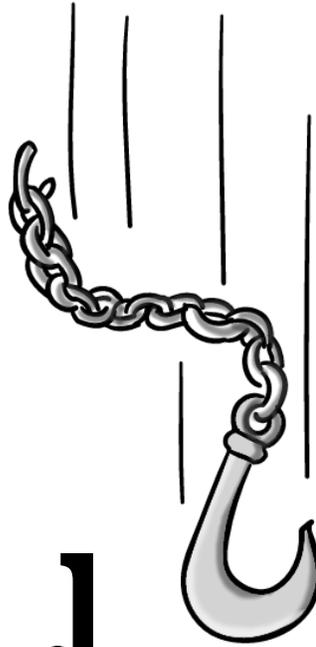
**SAFETY  
IS**

*Everyone's*

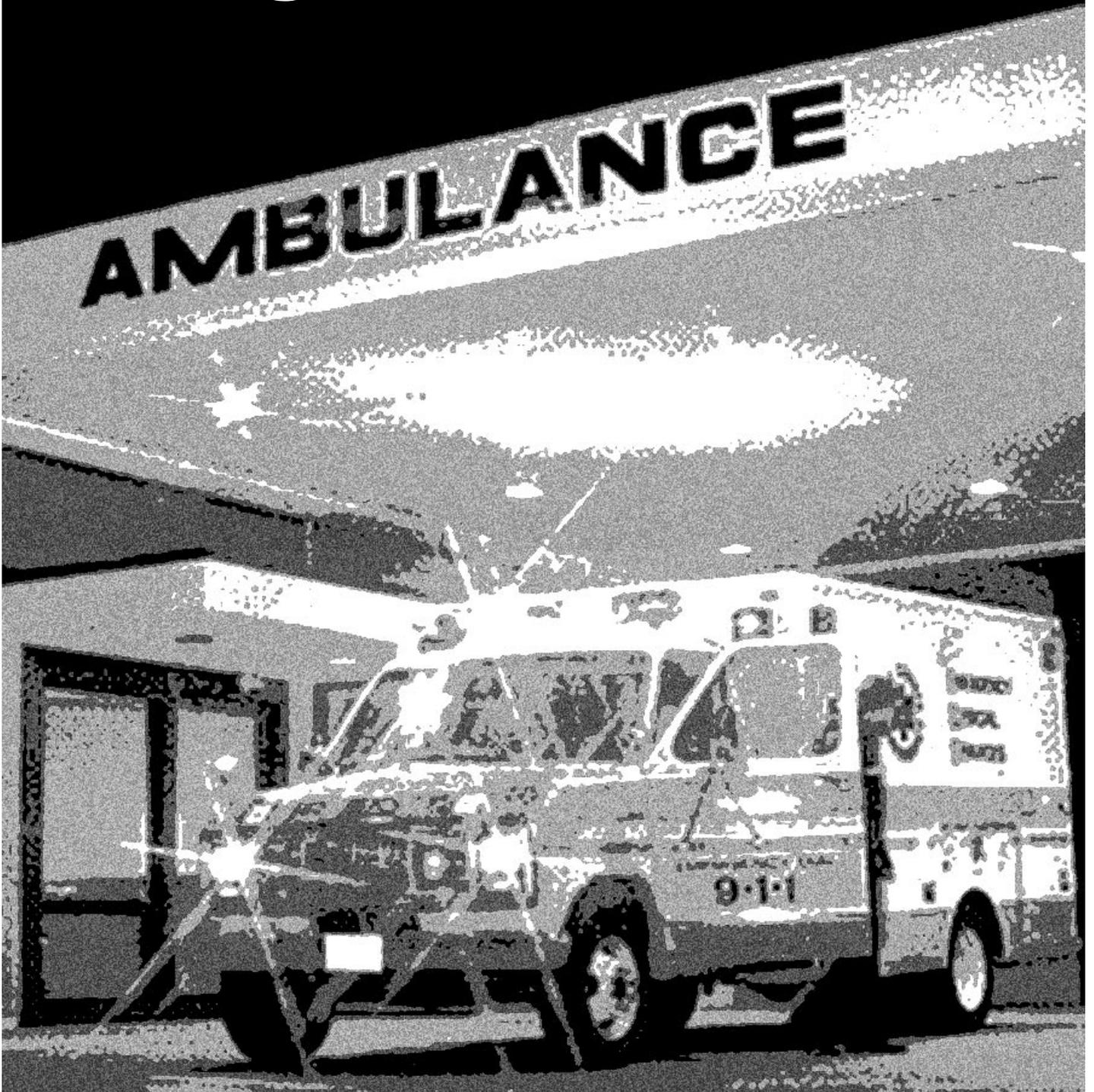
**JOB**



# Expect the Unexpected

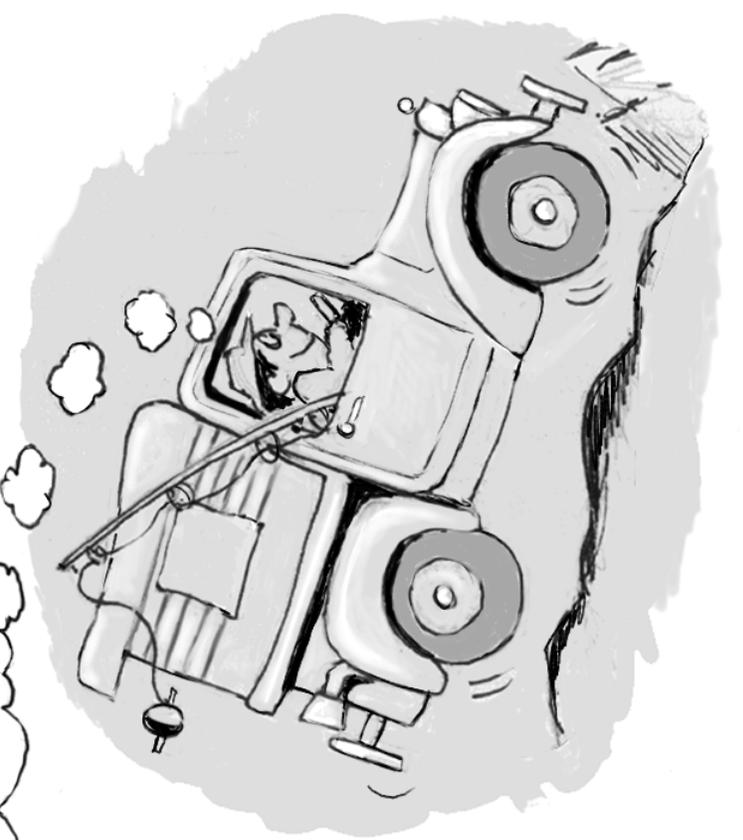


***“...but  
they were just  
horsing around.”***



**ON OR OFF THE JOB,**

**SAFETY !**



**KEEP SAFETY IN MIND.**

# Accidents

# DON'T

# just

# “happen.”



# 101 Stress Relievers

Need a quick—or not so quick—stress-break? Fresh out of ideas? Try one of these:

*Stop and look out the window.*

Work a crossword puzzle.

**ANGRY? TALK TO A FRIEND ABOUT IT.**

Apologize for a mistake. **Meditate.**  
Stand up and stretch.

**Ask for help.**

Call up an old friend. **Run.**

*Change coffee break to exercise break.*



Build a model ship.

**TELL** someone "I love you." a joke.

**STOP AND YAWN.**

Dance

**CLIMB A MOUNTAIN.**

Close your eyes. What do you see?

**Count to ten—or 1000—before exploding.**  
Count your blessings—make a list.

Cut back on caffeine.

**WATCH A REALLY GOOD MOVIE.**

Plan ahead.

Eat



**DAYDREAM** spend your coffee break at the beach.

**Do one thing at a time.**



an

Eat a good breakfast.

**Forgive someone.**

Fly a kite.

Get a massage. Get a pet.

orange slowly,

**Find someone you're grateful to and thank them.**

Go fishing.



segment by segment.

Get a good night's sleep.

Get up fifteen minutes early.

Keep a journal of thoughts and feelings.

**GO**

for a brisk walk. swimming.

to work a different way.

Hug a tree.

Hug someone you love.

**Laugh at something you did.**

LEARN TO SAY NO.

Leave the car at home and take the bus.

**LOOK**

at the big picture. Lie in a hammock.  
closely at a flower, leaf, blade of grass or tree trunk.  
off into the distance.

**Lift weights.**

Listen to the birds.

*Make love.*

WASH THE CAR.

Plant a flower.



Read a good book.

Play a round of golf.

**Make a list.** Then follow it.

**READ SOMETHING FUNNY EVERY DAY.**

Ride your bike to work.

Share feelings with someone.

...a cat in your lap.  
...on some music.  
...plants in your office.  
...your feet up.

**Massage your temples.**

Quit smoking.

*Write a poem.*

Sit by a fountain or stream. Close your eyes and bear the water.

Practice Yoga.

Work out at the gym.

**WEAR EARPLUGS WHEN IT'S NOISY.**

- ✓ Take a child to the playground.
- ✓ Take a deep breath and let it all out.
- ✓ Take a leisurely stroll.
- ✓ Take a long bath.
- ✓ Take a nap.
- ✓ Take an herb tea break.
- ✓ Take one day at a time.
- ✓ Take the back roads.
- ✓ Take the stairs.
- ✓ Take time for the sunset—or sunrise.
- ✓ Take up knitting.

**Write a letter to the editor.**

**TALK TO YOURSELF: "I CAN DO A GREAT JOB." "I CAN STAY CALM UNDER PRESSURE."**

Paint a peaceful scene—in your imagination.

**Make time for play.**

Spend an evening without TV.

*Write...* down your fears. down your dreams. your congressman.

**PRACTICE LAUGHING OUT LOUD.**

Watch a cloud for five minutes. Watch an ant or other insect for five minutes.

Sit by a fire.



Turn cocktail hour into exercise hour.

*Walk barefoot in the grass.*

CLASP YOUR HANDS BEHIND YOUR HEAD AND STRETCH YOUR SHOULDERS.

PERMIT  
ENTRY  
SPACE

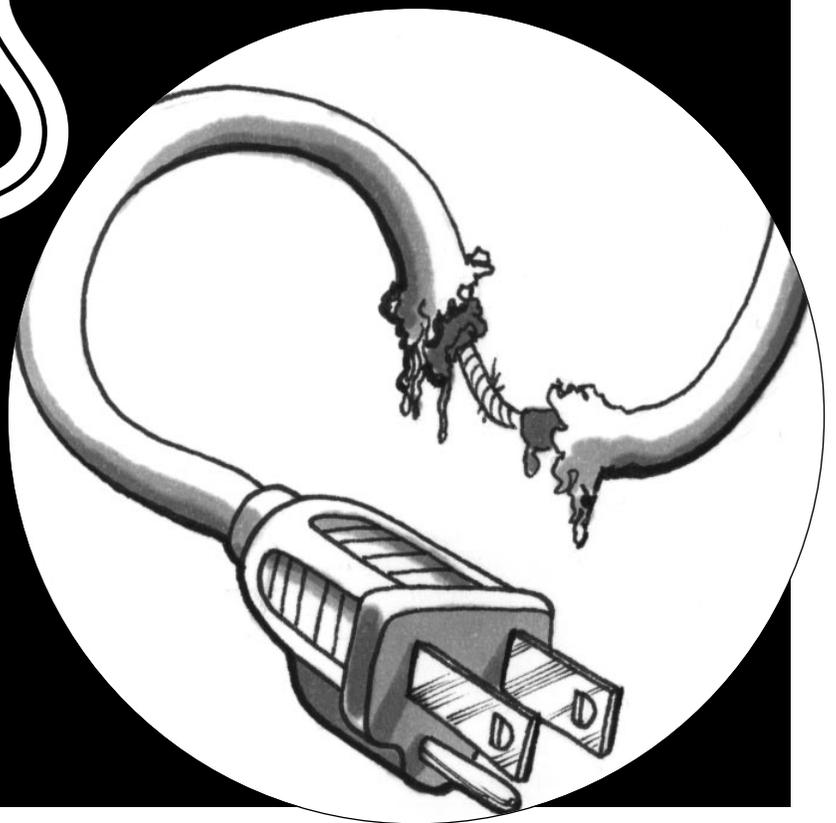


**Confined  
space  
entries  
are  
never  
routine.**

**KNOW:**

**THE  
ENTRY  
AND  
EXIT.**

# BAD WIRES CAN CAUSE FIRES

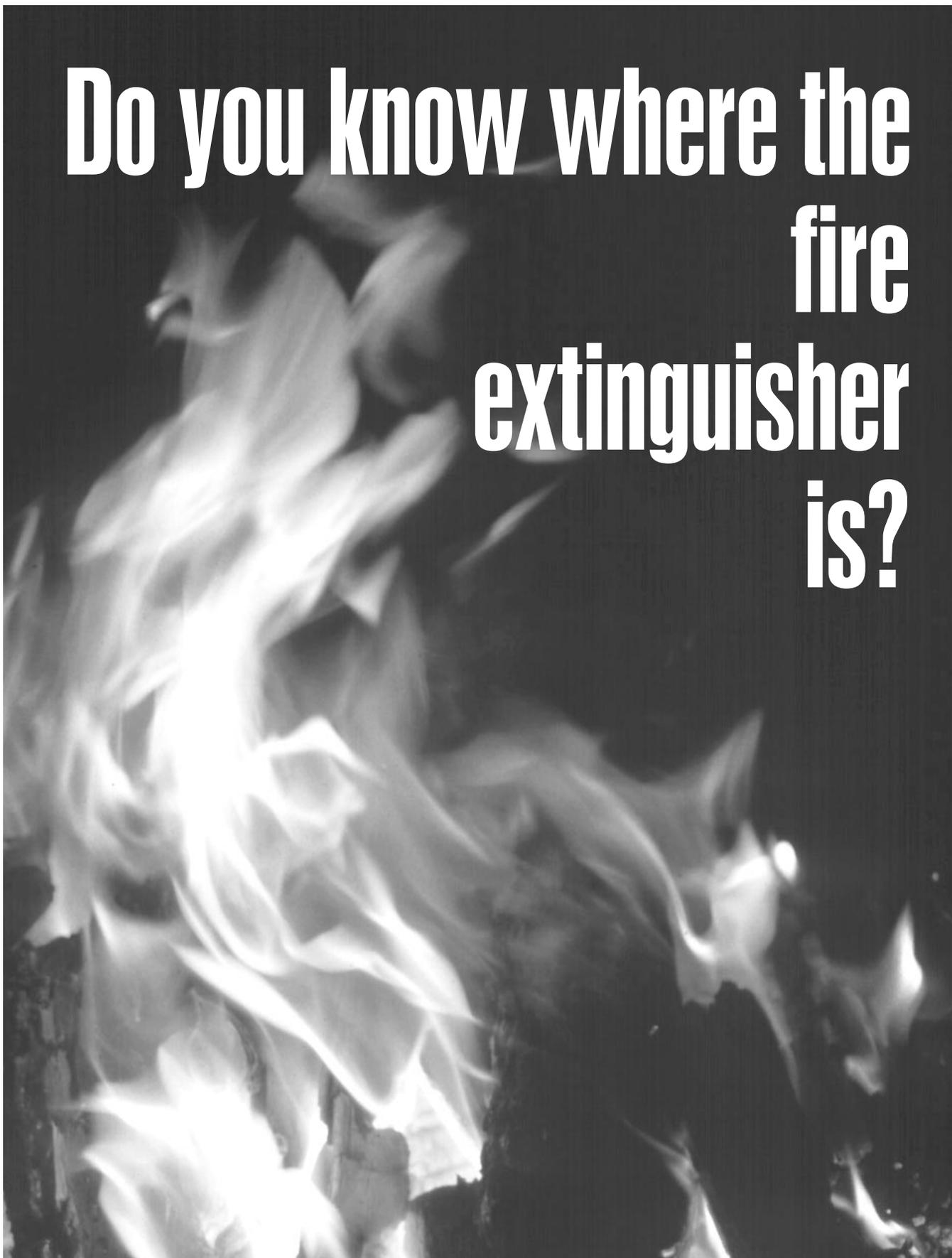


# PAY ATTENTION



... to chemical  
warning labels.

**Do you know where the  
fire  
extinguisher  
is?**



# FIRST THINGS FIRST!

**Call  
for  
help**



**BEFORE**

**you  
try  
to put  
it out.**



# MSDS

## Material Safety Data Sheets

The more you know about the chemicals you use,  
the safer you'll be.



**Prevent  
chemical spills and leaks:  
inspect containers regularly.**



**Prevent chemical burns.**

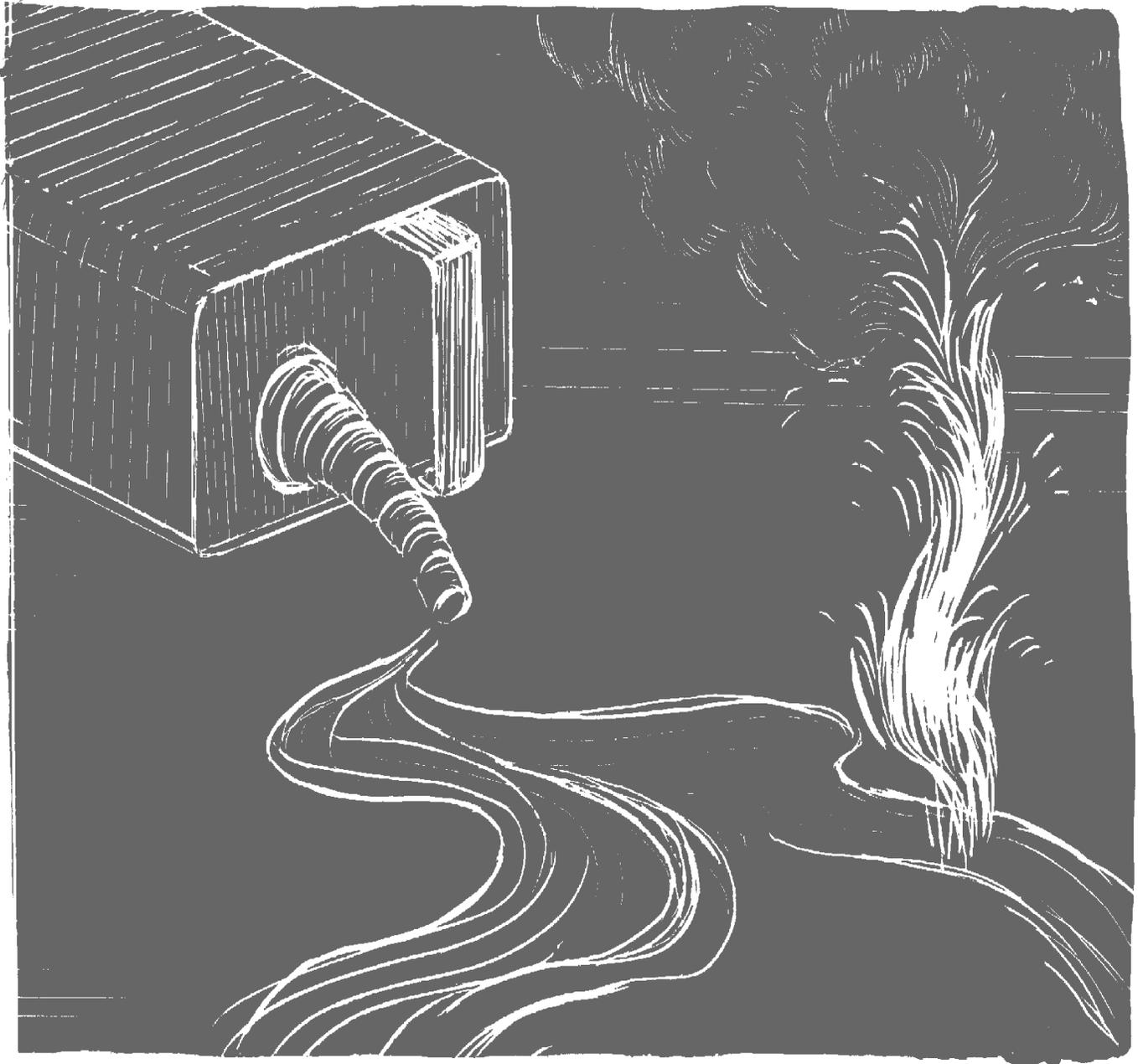
**Know where the nearest  
safety shower or  
eyewash station is.**

**DO**  
**PUSH IT**



**DON'T**  
**PULL IT**





**Store  
Flammables  
Properly.**

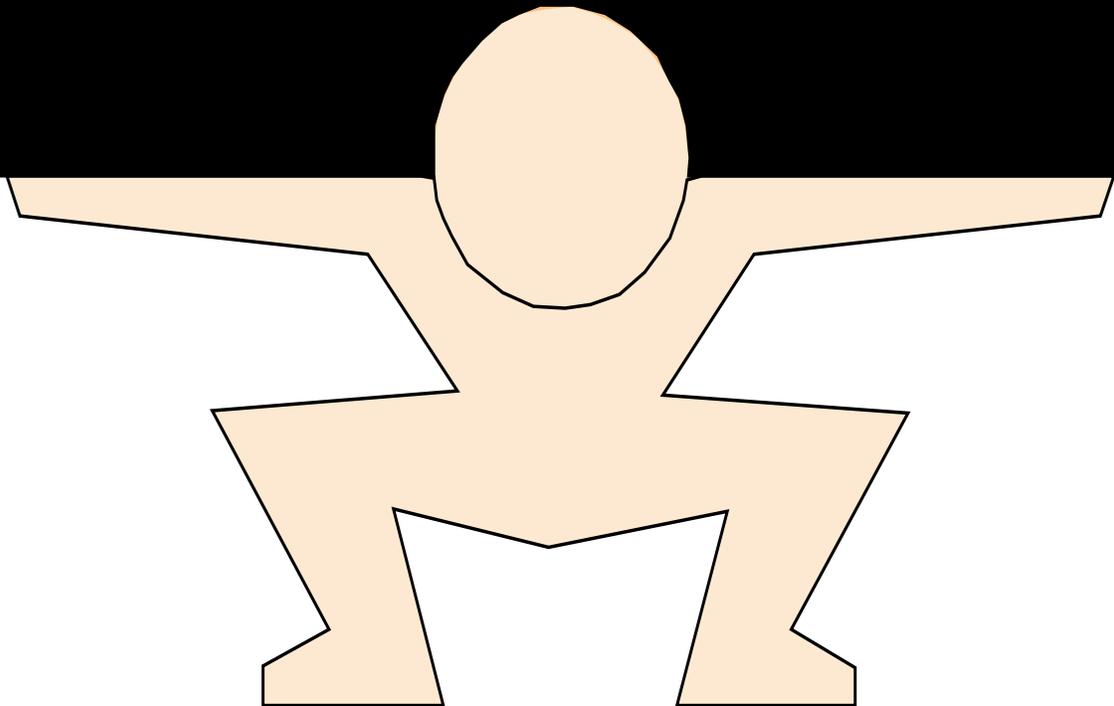
# Lift With Your Legs,



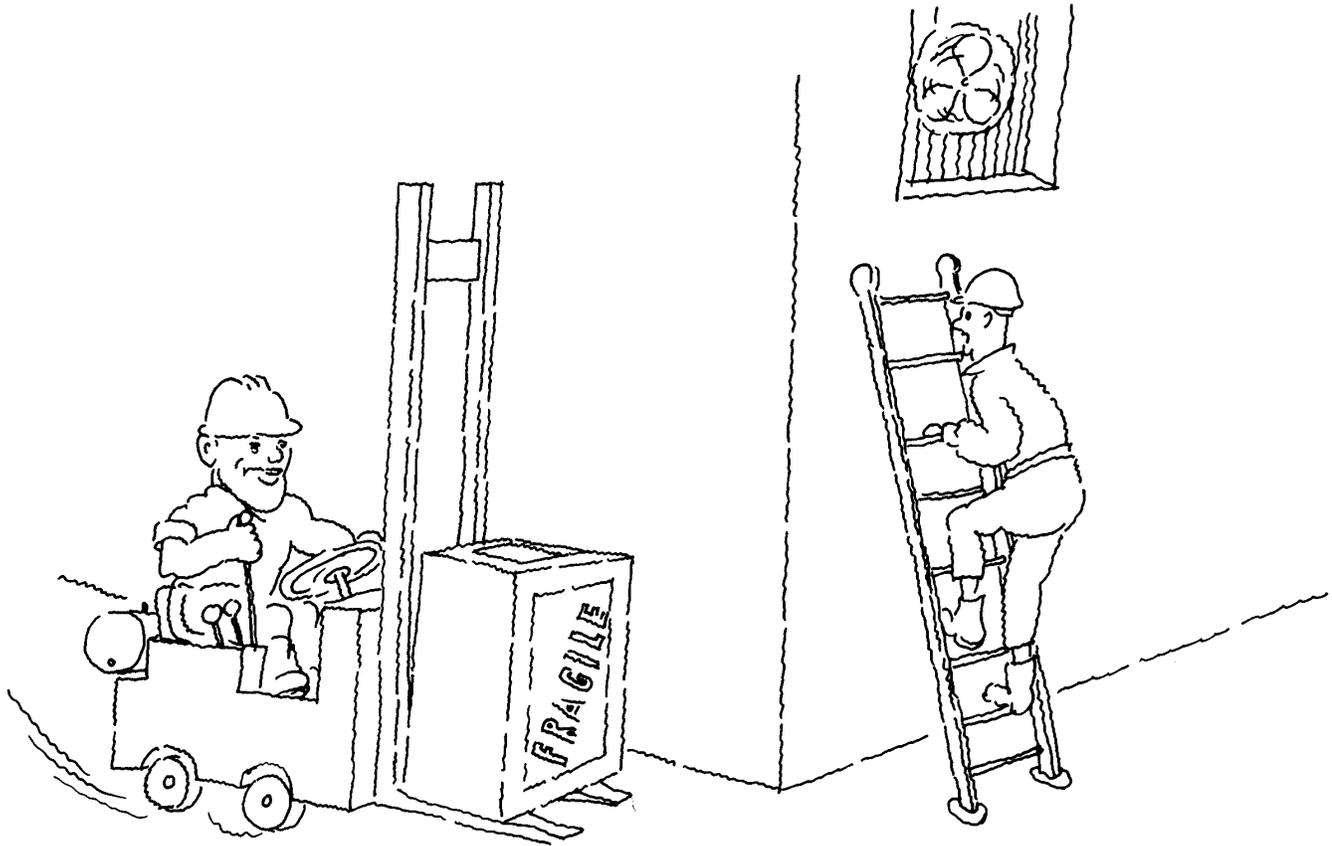
# Not Your Back.



**GET  
HELP WITH  
HEAVY LOADS**



# WATCH OUT



# AROUND CORNERS



**Before you  
work on it...**

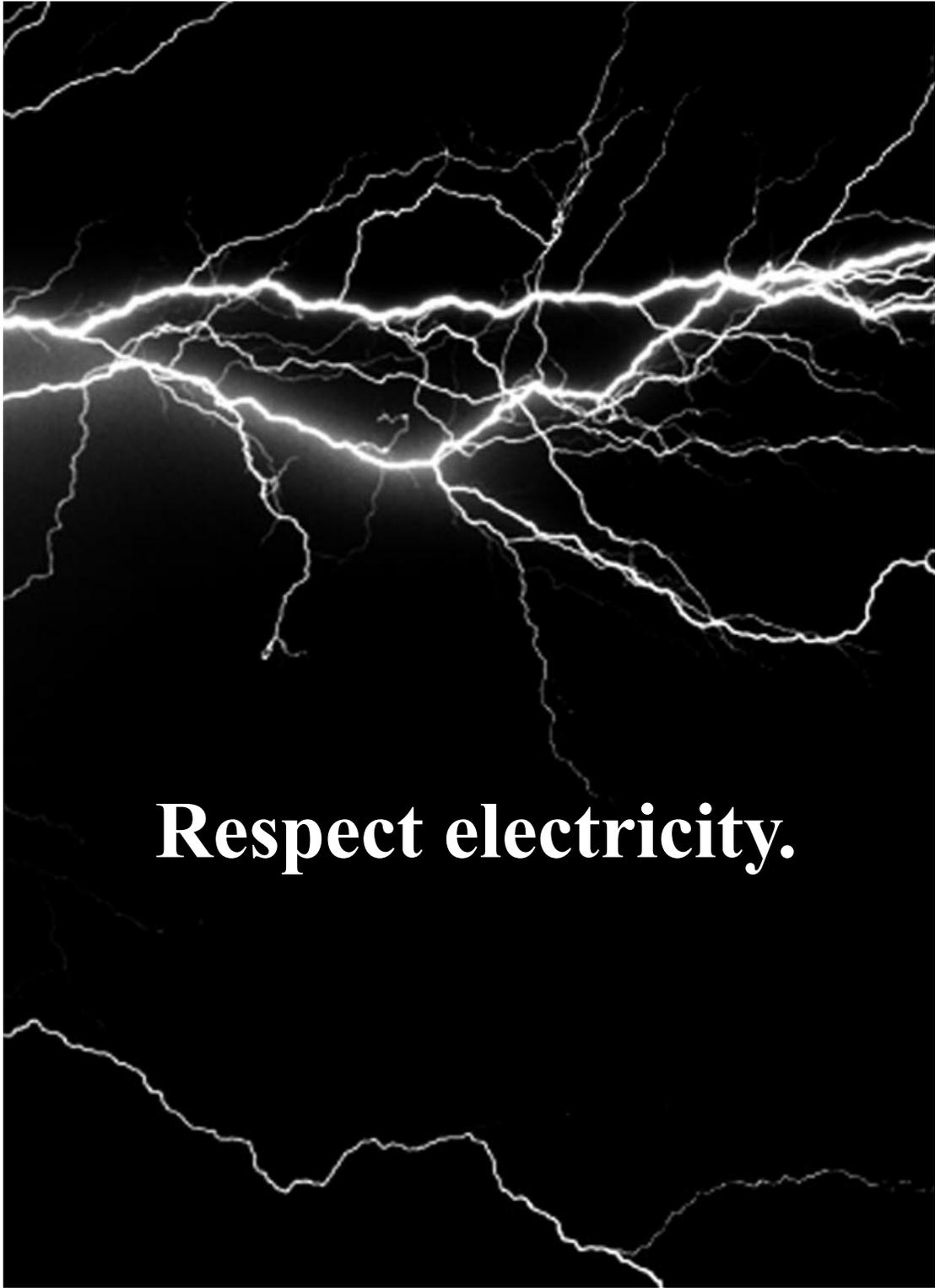
**LOCK  
IT  
OUT!**

**Do your part to  
PREVENT  
slips and falls.**

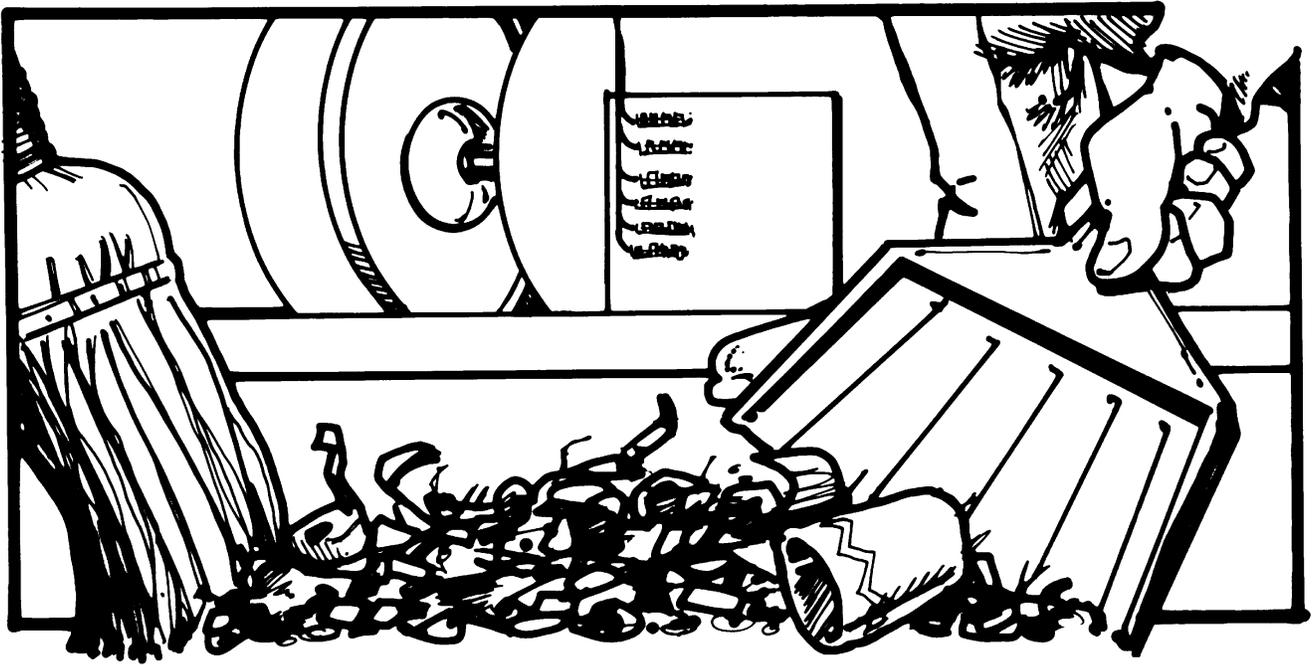
 **Clean up.**

 **Pick up.**

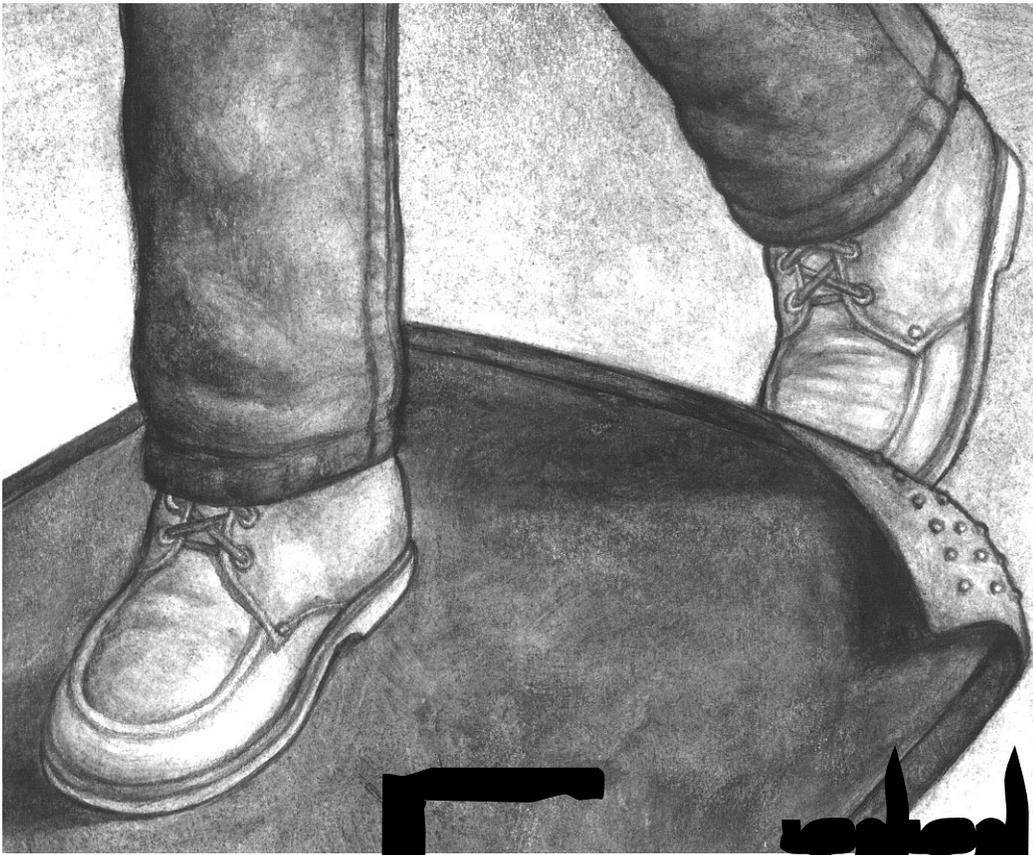
 **Wipe up.**



**Respect electricity.**



**Clean up**  
before you  
**slip up.**



**Watch**  

---

**where**  

---

**you're**  

---

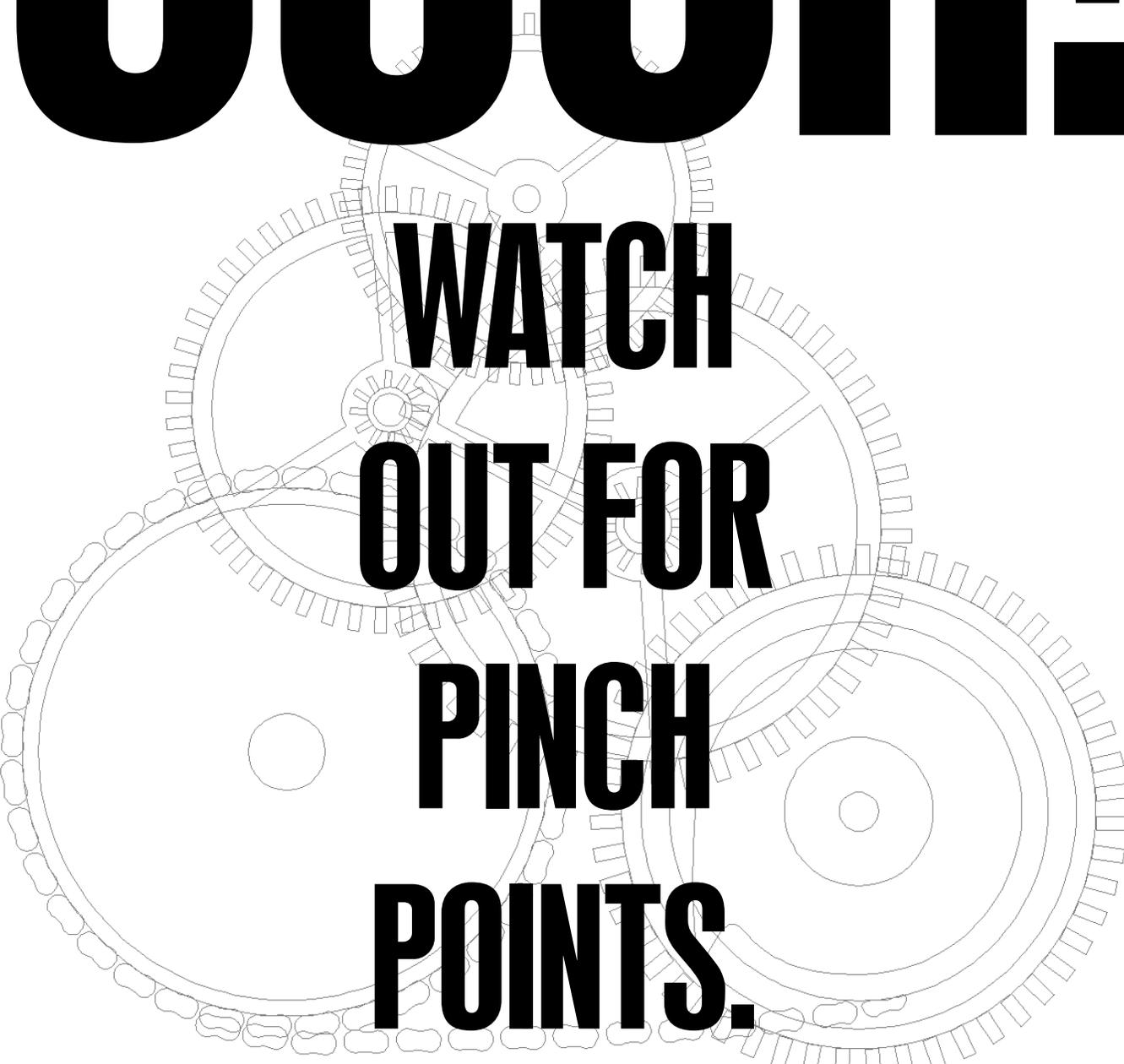
**walking.**

**Falls  
hurt.**

**Basic rule  
of thumb:  
leave guards  
in place.**



# **OUCH!**



**WATCH  
OUT FOR  
PINCH  
POINTS.**

# Safety

# &



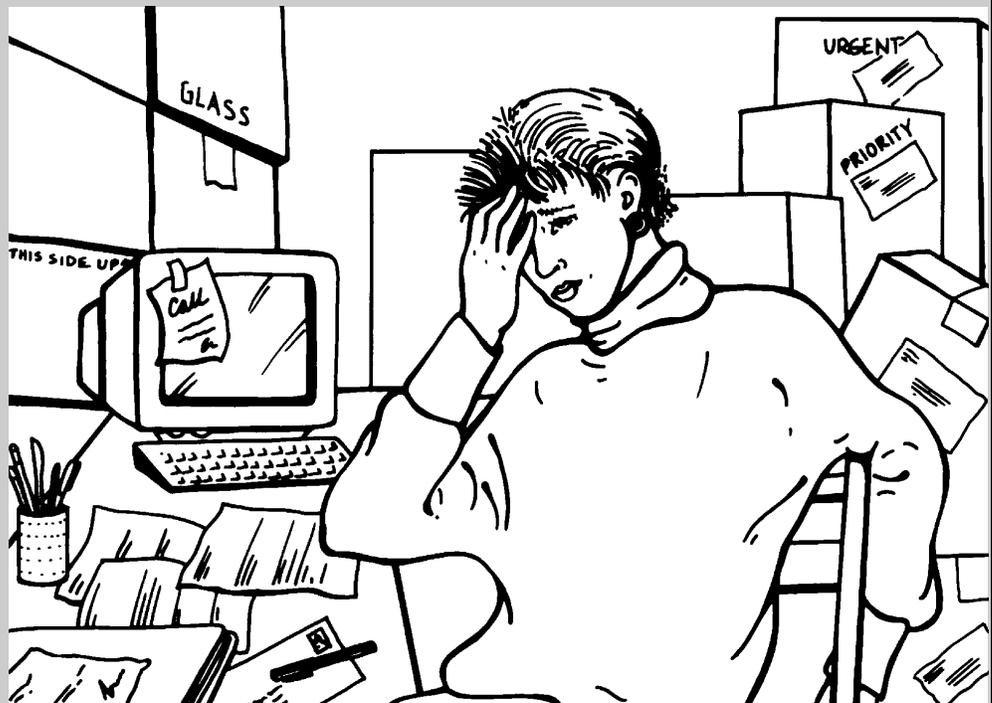
# alcohol

# DON'T MIX.

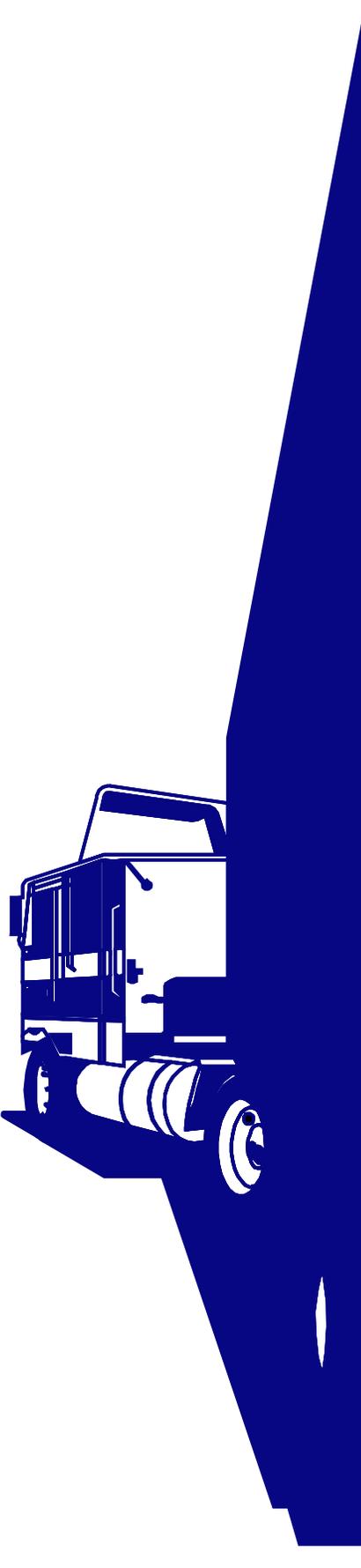


***Use the  
right tool  
for the job.***

You can't follow  
safety rules in  
your sleep.



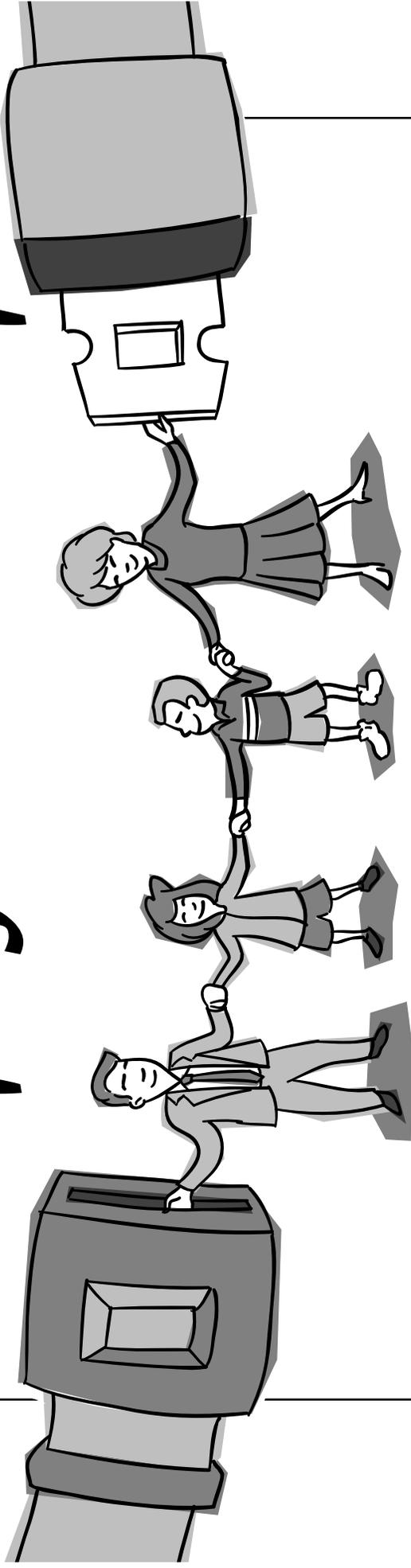
Get plenty of rest.



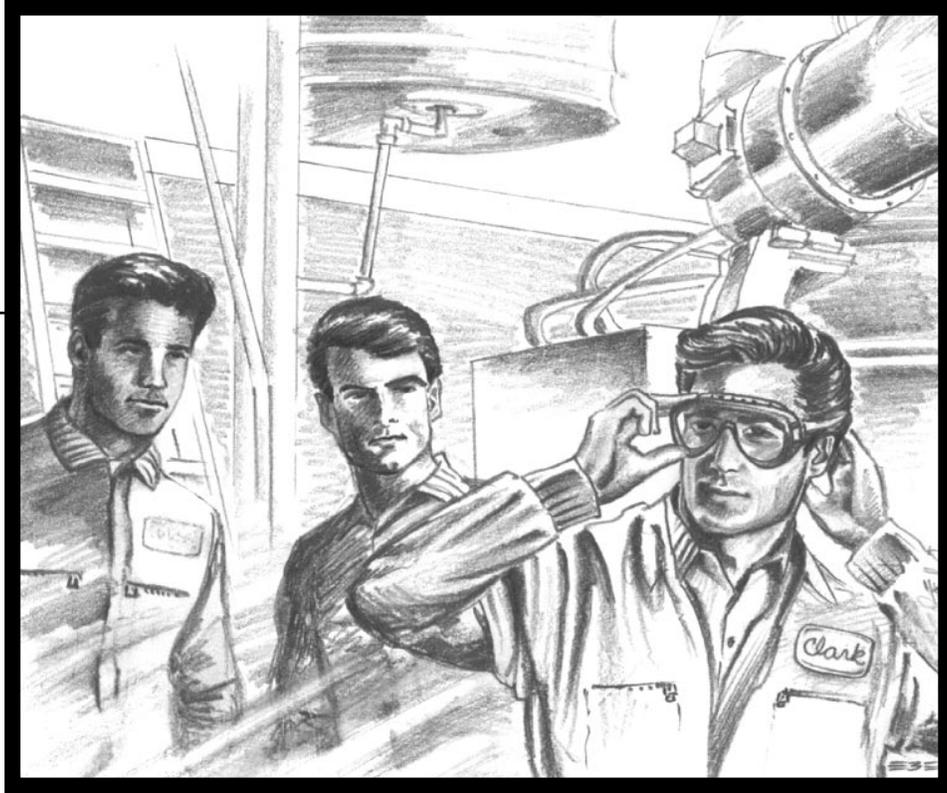
# **Keep Your Distance**

**Don't Follow  
Too Closely.**

***Safety Belts Keep***



***the Family Together.***



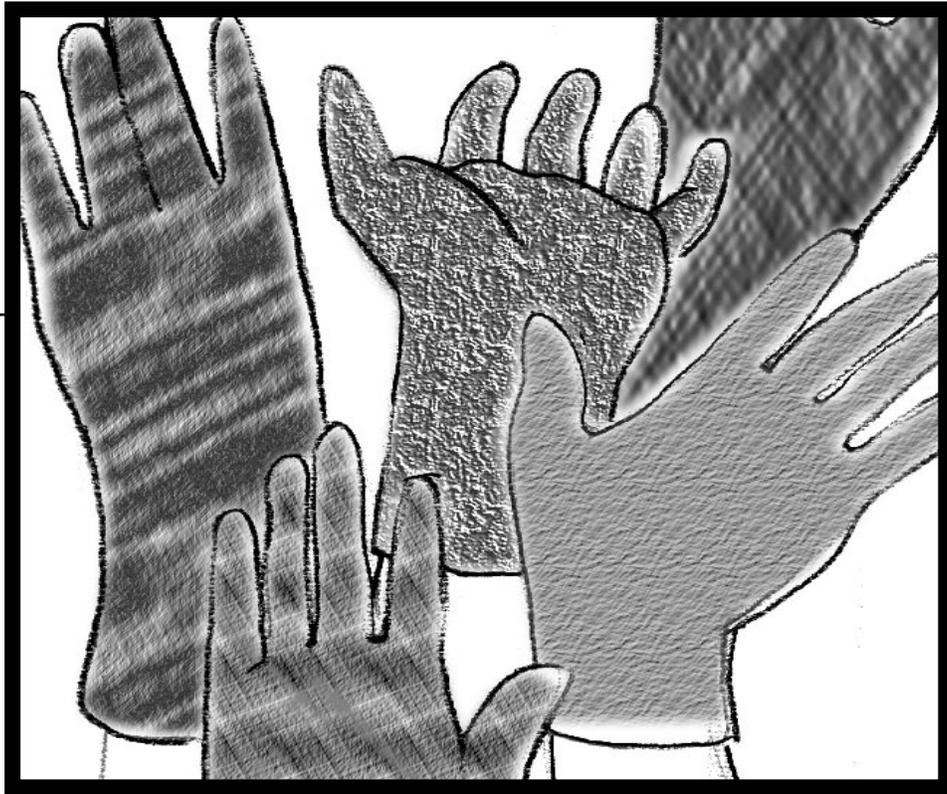
# Use Eye Protection



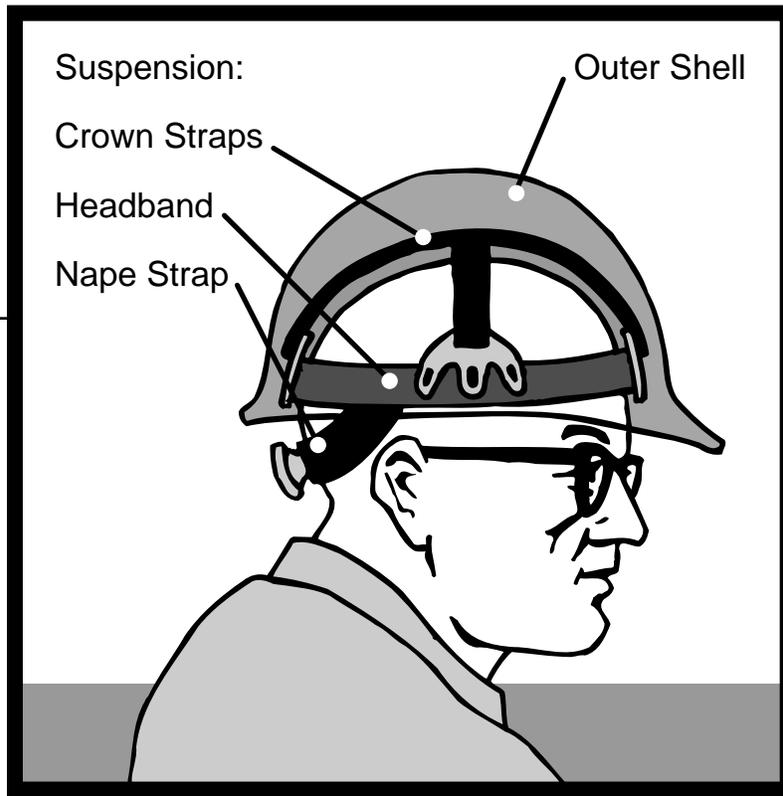
# Use Proper Safety Shoes



# Use Respiratory Protection



# Use Proper Work Gloves



# Use Proper Head Protection