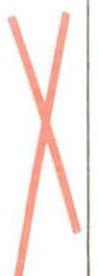


KIND OF FIRE		APPROVED TYPE OF EXTINGUISHER							HOW TO OPERATE
DECIDE THE CLASS OF FIRE YOU ARE FIGHTING. . .	. . . THEN CHECK THE COLUMNS TO THE RIGHT OF THAT CLASS	MATCH UP PROPER EXTINGUISHER WITH CLASS OF FIRE SHOWN AT LEFT							FOAM: Don't Play Stream into the Burning Liquid. Allow Foam to Fall Lightly on Fire.
		FOAM Solution of Aluminum Sulphate and Bicarbonate of Soda	CARBON DIOXIDE Carbon Dioxide Gas Under Pressure	SODA ACID Bicarbonate of Soda Solution and Sulphuric Acid	PUMP TANK Plain Water	GAS CARTRIDGE Water Expelled by Carbon Dioxide Gas	MULTI-PURPOSE DRY CHEMICAL	ORDINARY DRY CHEMICAL	
 CLASS A FIRES USE THESE EXTINGUISHERS ORDINARY COMBUSTIBLES • WOOD • PAPER • CLOTH ETC.									 CARBON DIOXIDE: Direct Discharge as Close to Fire as Possible. First at Edge of Flames and Gradually Forward and Upward.
 CLASS B FIRES USE THESE EXTINGUISHERS FLAMMABLE LIQUIDS, GREASE • GASOLINE • PAINTS • OILS, ETC.									 SODA ACID, GAS CARTRIDGE: Direct Stream at Base of Flame.
 CLASS C FIRES USE THESE EXTINGUISHERS ELECTRICAL EQUIPMENT • MOTORS • SWITCHES ETC.									 DRY CHEMICAL: Direct at the Base of the Flames. In the Case of Class A Fires, Follow Up by Directing the Dry Chemicals at Remaining Material That is Burning.

IMPORTANT! USING THE WRONG TYPE EXTINGUISHER FOR THE CLASS OF FIRE MAYBE DANGEROUS!

TABLE I

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH

HEALTH AND SAFETY GUIDE – AUTOMOTIVE PARTS RECYCLERS

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health
Division of Technical Services
Cincinnati, Ohio
July 1976

ACKNOWLEDGMENT

This booklet was prepared by the Technical Information Development Branch in the Division of Technical Services and personnel in the NIOSH Regional Offices who gathered information from State and Federal Agencies, insurance companies, and with the cooperation of trade associations. Those contributing to the "Health and Safety Guide for Automotive Parts Recyclers" were: Gerald J. Karches, Chief, Technical Information Development Branch, Howard R. Ludwig, and Bobby J. Gunter.

DHEW Publication No. (NIOSH) 76-164

The factors that contribute to safe lifting are...

HOW TO LIFT SAFELY

The following safe practices should be observed in order to avoid injury.

1. Approach the load and size it up (weight, size and shape). Consider your physical ability to handle the load.

2. Place the feet close to the object to be lifted. 8 to 12 inches apart for good balance.

3. Bend the knees to the shape that is comfortable and get a good handhold. Then using both leg and back muscles.

4. Lift the load straight up smoothly and evenly. Position with your legs, keep load close to your body.

5. Lift the object into carrying position, making no turning or twisting movements until the lift is completed.

6. Turn your body with changes of foot position after looking over your path of travel making sure it is clear.

7. Setting the load down, is just as important as picking it up. Using leg and back muscles, comfortably lower load by bending your knees. When load is securely positioned, release your grip.

DETERMINE IF OBJECTS CAN BE LIFTED AND CARRIED SAFELY.

Stack material in such a manner as to permit full view while carrying.

When lifting and carrying with another person, teamwork is important. The load should be equally distributed. Movements must be coordinated so you both start and finish the lift at the same time and perform turning movements together.

When two persons carry a long object, it should be held at the same level by both and on the same side of the body.

Avoid strain by slinging heavy objects at least 12 inches above the floor.

Avoid awkward positions on repetitive movements while lifting.

Over reaching and stretching to reach overhead objects may result in strains or falls. Use a ladder instead of chairs, boxes, etc.

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EMERGENCY INFORMATION

FIRE

Telephone Fire Department _____

Nearest Alarm Box at _____

CRIME

Telephone Police _____

INJURY/ILLNESSES

Avoid infection of minor injuries; always get medical attention or skilled first aid.

Doctor _____

Office _____ Tel. _____

Residence _____ Tel. _____

Hospital _____

Address _____ Tel. _____

Ambulance _____

Address _____ Tel. _____

(In emergencies, get medical attention and transportation elsewhere if necessary.)

In all cases of Fire, Crime, Accident, or Sickness, promptly notify:

1. Name _____ Office Tel. _____

Address _____ Res. Tel. _____

or

2. Name _____ Office Tel. _____

Address _____ Res. Tel. _____

INTRODUCTION

The Williams-Steiger "Occupational Safety and Health Act of 1970" was passed into law "to assure safe and healthful working conditions for working men and women . . ." This Act established the National Institute for Occupational Safety and Health (NIOSH) under the Department of Health, Education, and Welfare (DHEW) and the Occupational Safety and Health Administration (OSHA) under the Department of Labor (DOL). The Act provides for research, information, education, and training in the field of occupational safety and health and authorizes the enforcement of standards. As part of these activities, surveys have been made by NIOSH to determine the most common health and safety problems in small businesses. This Guide was developed for distribution throughout the industry and includes a "Guidelines" section and a section on "Frequently Violated Regulations."

While the aim of this Guide is to assist in providing a safe and healthful workplace by describing safe practices and helping to correct some of the more frequently encountered violations of the safety and health standards, it is not intended to provide total information in all areas of compliance. Additional information can be found in "General Industry Standards," Code of Federal Regulations, Title 29 — Part 1910.

Words such as "must," "shall," "required," and "necessary" appearing in the text, indicate requirements under the federal regulations. Procedures indicated "should," "suggested," etc. constitute generally accepted good practices.

In some states, the federal government has delegated enforcement authority for occupational safety and health to the state government. Although state standards sometimes differ from federal regulations, they must be at least as effective as the federal standards.

On the last few pages of the Guide are listed addresses of NIOSH and OSHA regional offices where additional information and materials can be obtained. Consultation resulting from requests for assistance will not precipitate a compliance visit by OSHA.

DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH
ROBERT A. TAFT LABORATORIES
4676 COLUMBIA PARKWAY, CINCINNATI, OHIO 45226

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HEW 399

HEW Publication No. (NIOSH) 76-164

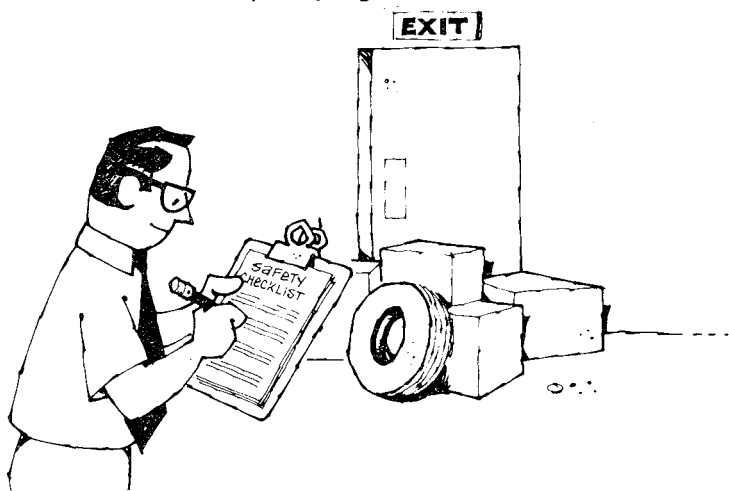
HEALTH AND SAFETY GUIDELINES

HEALTH AND SAFETY PROGRAM

Hazardous conditions or practices not covered by specific OSHA standards are covered under the general duty clause of the Act which states "Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

A health and safety program is an effective method to assist in providing for a safe working environment. The purpose of such a program is to recognize, evaluate, and control hazards and potential hazards in the workplace.

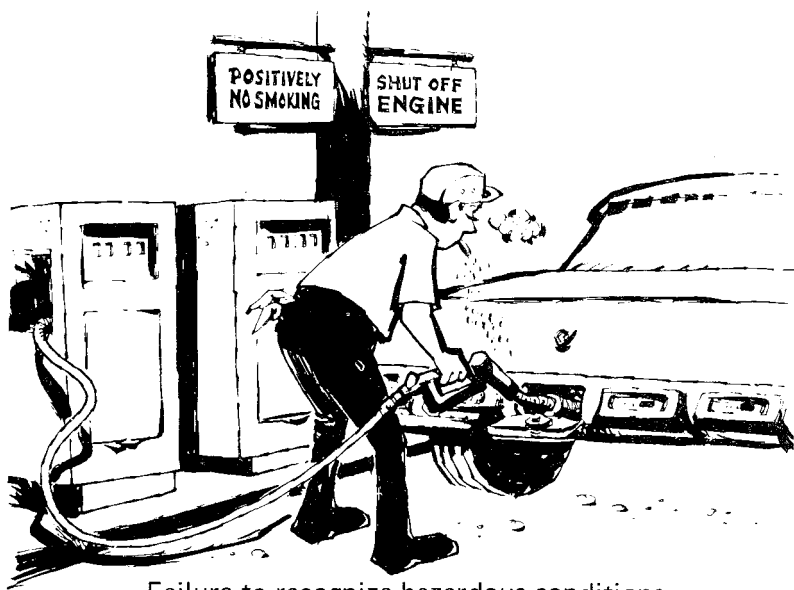
Hazards may be identified by performing self-inspections, soliciting employee input (interviews, suggestions, and complaints), promptly investigating accidents, reviewing injury and illness records, using material in this Guide, and from other information sources. Typical examples of hazards are unsafe walking surfaces, unguarded machinery, electrical hazards, improper lifting, and air contaminants. The "Checklist" in the back of this book is of particular importance in identifying hazards. It should be customized to fit the needs of your program.



HEALTH AND SAFETY GUIDELINES

Situations which occur most frequently or cause severe problems, should be given priority for corrective action. This Guide contains many of the requirements and good practices needed to correct hazards.

For more complex problems, such as those requiring engineering controls to reduce noise or airborne contaminants, outside consultants may be needed.



Failure to recognize hazardous conditions

Management leadership is necessary for the acceptance of the health and safety program. The foreman or supervisor who deals directly with employees must be responsible for implementing the program. Since employees cannot take an interest in a program of which they are unaware, regular meetings or informal discussions should be held to discuss safety promotions, potential hazards, and injury or illness records. Employees will be more likely to follow safe work practices if they understand the reasons behind the procedures.

HEALTH AND SAFETY GUIDELINES

EMPLOYEE TRAINING

A safe operation depends largely upon employees who are properly informed and aware of potential hazards. Training needs will vary according to the complexity of the operation. Some suggestions are to:

1. Impress upon the employee the need for constant awareness—even during automatically controlled operations.
2. Be sure all employees know when and how to use appropriate personal protective equipment.
3. Develop and maintain check points to be observed as a part of standard and emergency procedures.
4. Post appropriate warning signs and operating procedures.
5. Instruct employees in the use of portable fire extinguishers. (Refer to fold-out chart in this booklet and post in a conspicuous place.)
6. Have at least one person trained in first aid available.
7. Be sure employees authorized to use motorized equipment are thoroughly instructed in its operation and potential hazards.
8. Develop a “good housekeeping” awareness to reduce accidents and to develop the employees’ sense of pride in their surroundings. One employee should be assigned responsibility for clean-up.
9. Instruct employees in safe-lifting practices. Such instructions may prevent many injuries. An easily understood chart, “How to Lift Safely,” is included in the back of this book for posting where it may be seen by employees.

HEALTH AND SAFETY GUIDELINES

MACHINE GUARDING

It is generally recognized that machine guarding is of the utmost importance in protecting the employee. In fact, it could be said that the degree to which machines are guarded in an establishment is a reflection of management's interest in providing a safe workplace.

Employees cannot always be relied upon to act safely enough around machinery in motion to avoid accidents. From time to time, they will react differently to the same environment because of physical, mental, or emotional changes — sometimes reacting safely, sometimes not. It follows that even the well-coordinated and highly trained individual may at times perform unsafe acts which could lead to injury and death, and, therefore, machine guarding is important.

HEALTH AND SAFETY GUIDELINES

GOOD HOUSEKEEPING

Maintaining a clean and orderly workplace reduces the danger of fires. Combustible material of any type should be kept only in places which are isolated by fire-resistant construction.

Rubbish should be disposed of regularly. If it is necessary to store combustible waste materials, a covered metal receptacle is suggested.

The materials used for cleaning can also create hazards. Combustible sweeping compounds such as oil-treated sawdust can be a fire hazard. Floor coatings containing low-flash-point solvents can be dangerous, especially near sources of ignition. All oily mops and rags must be stored in closed metal containers.

Some common causes of fires in all businesses are:

1. electrical malfunctions
2. friction
3. open flames
4. sparks
5. hot surfaces
6. smoking.

Proper maintenance and frequent self inspections through a safety program can reduce these hazards.

Not only does good housekeeping contribute to a safer workplace by reducing the potential for fire, it also reduces accidents caused by slips, trips, and falls. Falls are one of the chief contributors to injury in all industries. Accumulations of waste and scrap, and spills of slippery material (oil) must be cleaned up promptly so they do not constitute a hazard.

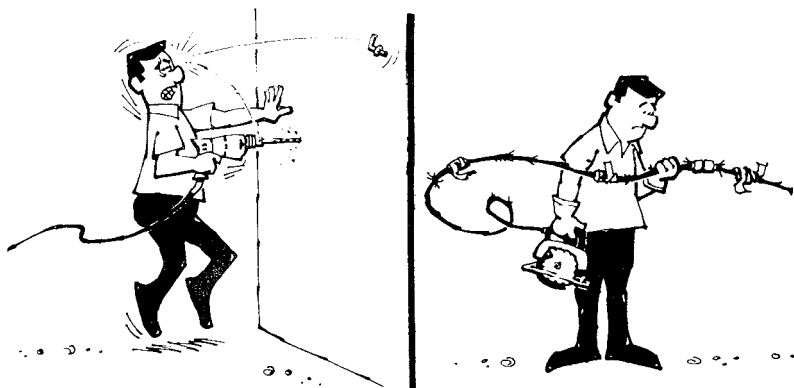
Good housekeeping also contributes to increased safety during materials handling and storage. An orderly workplace with unobstructed aisles and passageways can significantly reduce injuries.

HEALTH AND SAFETY GUIDELINES

SAFETY RULES FOR OPERATING POWER TOOLS

Employees should be instructed to:

1. know the application, limitations, and potential hazards of the tool used.
2. select the proper tool for the job.
3. remove adjusting keys and wrenches before turning on tools.



4. not use tools with frayed cords, or loose or broken switches.
5. keep guards in place and in working order.
6. have ground prongs in place, or use tools marked "double-insulated."
7. maintain working areas free of clutter.
8. keep alert to potential hazards in the working environment such as damp locations or the presence of highly combustible materials.
9. dress properly to prevent loose clothing from catching in moving parts.
10. use safety glasses, dust or face masks, or other protective clothing and equipment when necessary.
11. not surprise or distract anyone using a power tool.

HEALTH AND SAFETY GUIDELINES

PRODUCT INVENTORY AND ENVIRONMENTAL CONTROL

In the occupational environment, employees may be exposed to excessive levels of a variety of harmful materials, including gases, dusts, mists, vapors, fumes, certain liquids and solids, noise, heat, cold, etc.

Often health hazards are not recognized because materials used are identified only by trade names; a further complication arises from the fact that materials tend to contain mixtures of substances, making identification still more difficult.

To begin identifying occupational health hazards, a materials analysis (product inventory) is made and all hazardous substances are listed and evaluated. If the composition of a material cannot be determined, the information should be requested from the manufacturer or supplier who often will provide Material Safety Data Sheets for the product. These sheets contain information about the material such as toxicity levels, physical characteristics, and incompatibilities with other substances.

A process analysis should be performed, noting all chemicals used and all products and by-products formed. When such an analysis is done, allied activities such as maintenance and service operations should be included. Specifics to watch for are:

1. Welding performed as a maintenance procedure around chlorinated materials may cause the formation of toxic gases in addition to welding fumes.
2. If fork lift trucks with internal combustion engines are used for materials handling, then exhaust gases such as carbon monoxide should be included in the analysis.
3. When certain cleaning agents are mixed, poisonous gases, such as chlorine, are sometimes formed.

It should be noted that skin conditions, such as chemical burns, skin rashes, and dermatitis constitute over half of all occupational health problems. The use of proper personal protective equipment, good personal hygiene practices, and protective skin creams or lotions can often prevent skin problems.

HEALTH AND SAFETY GUIDELINES

Various control methods can be used to prevent or reduce employee exposure to air contaminants. They are as follows:

1. **Substitution** of less toxic materials.
2. **Change of a Process** — for example, a change from gas-operated fork lift trucks to electric lift trucks.
3. **Isolation** — placing the hazardous process in a separate room or in a corner of the building to reduce the number of persons exposed.
4. **Ventilation** — either local exhaust ventilation where contamination is removed at the point of generation, or general dilution ventilation (see "Occupational Health and Environmental Control").
5. **Administrative Controls** — limiting the total amount of time an individual is exposed to a health hazard and rotating two or more workers each day.
6. **Training and Education of Employees** — employees should be told what hazards they are exposed to and how to reduce or limit exposure (see "Employee Training").
7. **Personal Hygiene** — this cannot be overemphasized. Employees should wash their hands before eating. If chemicals such as solvents, caustics, epoxies, and resins get on the skin they should be washed off immediately. Employees should not be permitted to eat around toxic chemicals or in contaminated areas. Clothing should be changed and washed daily if it becomes contaminated with toxic chemicals, dusts, fumes, or liquids.
8. **Personal Protective Equipment** — use of such items as respirators, hearing protection devices, protective clothing, and protective equipment where necessary (see "Personal Protective Equipment").

HEALTH AND SAFETY GUIDELINES

THE INDUSTRY AND ITS HAZARDS

This Health and Safety Guide was written for those establishments primarily engaged in the recycling of parts for cars and trucks. The potential exists for accidents caused by faulty materials handling, tripping hazards, and unguarded machinery, as well as injuries (especially to the eyes and face) caused by flying fragments. The frequency and severity of these accidents can be greatly reduced by following proper work procedures, effectively guarding machinery, and the wearing of appropriate personal protective equipment. Prompt first aid treatment of cuts, scrapes, and burns is important to prevent infections.

There is also the potential for serious or traumatic injury whenever powered machinery such as alligator shears or metal saws is used. Injuries of this type may be eliminated through the use of effective machine guarding and operator training. A potential health concern centers on torch-cutting or burning operations. Cutting, burning, or welding operations must always be carefully controlled so that employees are not overexposed to fumes that are given off. Mechanical exhaust ventilation or respiratory protective devices may be required, depending on the type of metal being worked on and the location of the operation (see Welding, Cutting, and Brazing).

OUTSIDE STORAGE

Automotive parts recyclers usually have outdoor storage yards. Private roadways may run through the yard for shipping and receiving materials. Graded and well-maintained surfacing on roadways will prevent the formation of holes and slippery conditions which can cause accidents. Walkways and roadways must be kept in good repair and free of debris and other obstacles so as to encourage employees to use the walkways and to discourage the practice of walking over parts or taking short cuts.

It should be obvious that good housekeeping in the yard will reduce the chance of injuries. Hulks should be stacked in a secure manner and not decked more than two cars high to decrease the possibility of unstable storage.

The speed of vehicular traffic traveling on yard roadways should be limited to 12 miles per hour or slower. Wherever there are narrow roadways on which vehicles cannot pass and on which it would not be practical to have one-way traffic, special rules gov-

HEALTH AND SAFETY GUIDELINES

erning traffic should be established. Where a road makes a sharp turn around a blind corner, warning signs should be posted. A helpful device is a mirror placed on the outside of a curve so that drivers approaching from either direction can see the roadway.

INSIDE STORAGE

Where parts are stored inside, the aisles and passageways must be kept clear of parts or other debris which could obstruct traffic and create a hazard. All shelves must be strong enough to safely bear the weight of the parts or materials stored on them. Parts stacked or in tiers must be stable and secure from sliding, falling, or collapse. Sharp or pointed parts of inventory must not be allowed to protrude into aisles or passageways — especially at eye level.

HEALTH AND SAFETY GUIDELINES

YARD WRECKERS

A yard wrecker is a mobile piece of equipment, often a truck cab and chassis with attached boom and winch, that is used primarily for the lifting and transporting of motor vehicles to facilitate dismantling or the removal of parts from them.



SAFETY CONSIDERATIONS:

1. Prior to being authorized to use a yard wrecker, the operator must be trained in the proper method of operation.
2. All gears, shafts, belts, pulleys, chain drives, or fan belts must be guarded.
3. Winch controls should be mounted so that the operator cannot accidentally come in contact with the rope.
4. General maintenance of a yard wrecker must include a periodic inspection of cables (wire ropes) and their fastenings, hooks, torches and hoses (if applicable).
5. The wrecker boom must be equipped with a permanent tag or plate showing the rated load capacity which should be visible to the operator. The boom and ropes should have a safety factor

HEALTH AND SAFETY GUIDELINES

of at least five. The boom must be installed on the vehicle in a manner capable of sustaining the imposed load.

6. A yard wrecker should be equipped with wheel coverings or fenders and an audible back-up warning device.

7. If a gas torch is mounted on a yard wrecker, the cylinders must be mounted in an upright position and be securely attached to prevent the tanks from being dislodged. They must be located so that no sparks from lighting or using the torch come near the wrecker's gas tank.

8. Loads should not be suspended during disassembly or removal of parts. Jack stands of sufficient strength must be placed under the load prior to working under it.

9. A suitable fire extinguisher should be mounted on the wrecker.

10. If an air tank (pressure vessel) is used on the vehicle, it must meet A.S.M.E. specifications (see "Compressed Air Equipment").

HEALTH AND SAFETY GUIDELINES

HANDLING OF GAS TANKS

All tanks should be drained upon arrival at the yard. The gas tank should be the first item removed when a vehicle is scrapped.

The gas tanks of motor vehicles being dismantled **prior** to being placed in yard storage should be drained before being removed from the vehicle. All tank openings should then be plugged and the tank removed with wrenches or bolt cutters **before** any other dismantling is begun.

The gas tanks of vehicles that are **not** dismantled prior to being placed in the yard should be drained upon arrival at the yard. When tanks are sold, openings should be plugged before the tanks are removed with bolt cutters or wrenches. If a body section near the gas tank is to be removed by the use of flame, the tank must be removed first.

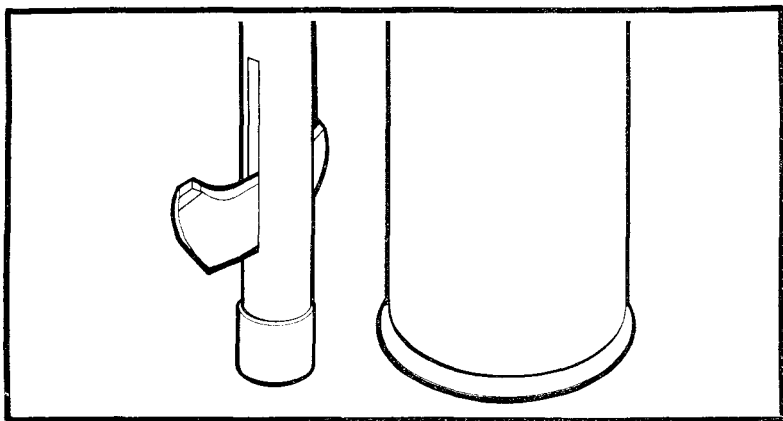
Dismantled fuel tanks should be checked to be sure they are empty and stored in a separate storage facility. This area must be clearly marked as to the contents and posted with a "NO SMOKING" sign.

HYDRAULIC VEHICLE LIFTS

Certain precautions are necessary for the safe operation of hydraulic vehicle lifts.

1. Untrained or unauthorized personnel should not be permitted to operate lifts.
2. Vehicles may not be raised with passengers inside.
3. Vehicle doors, hoods, etc. must be closed prior to raising the vehicle.
4. Employees should stand to one side of vehicles when directing them into position over the lift.
5. Loads must be squarely engaged, and neither the lift nor adaptor is to be overloaded.
6. The hoist controls are to be manually operated, and not locked into the open or shut position.

HEALTH AND SAFETY GUIDELINES



7. If a lift is equipped with a mechanical locking device, it must be made certain that the device is in place when the lift is up.

8. When a lift malfunctions (see below), it is **not** to be used, but must be removed from service and immediately repaired.

The lift needs attention if it:

- jerks or jumps when raised.
- slowly settles down after being raised.
- slowly rises when not in use.
- rises slowly when in use.
- comes down very slowly.
- blows oil out of the exhaust line.
- leaks oil at the packing gland.

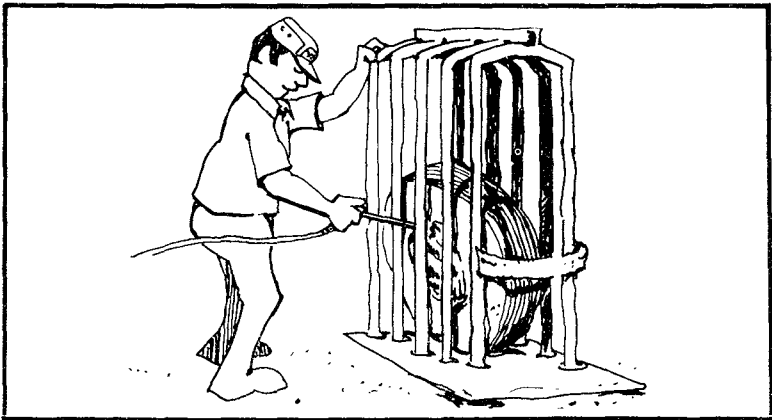
9. To maintain a clean, safe floor area, grates over floor drains must be large enough to cover the floor-drain openings and must be securely placed. Drain holes are to be cleaned periodically to maintain good drainage.

HEALTH AND SAFETY GUIDELINES

TIRE-CHANGING EQUIPMENT

A safety tire rack, cage, or equivalent protection should be provided and used when inflating, mounting, or dismounting tires installed on split rims, or rims equipped with locating rims, or similar devices.

A tire cage is required when truck tires are being repaired.



BATTERY CHARGING

The battery charging operation produces hydrogen gas and an explosive atmosphere may result unless ventilation is provided. Smoking, open flames, sparks, or electric arcs must be prohibited in the battery charging area. If acid is handled in the battery area, an emergency eye wash must be available.

FREQUENTLY VIOLATED REGULATIONS

This section outlines the OSHA regulations which are most applicable to general conditions and operations throughout the industry. The standards are listed and the important parts of each standard are summarized.

General conditions and controls are discussed. Your particular operation may vary, so some of these standards may not apply or additional standards may also be applicable. The control methods presented are only a brief, general suggestion as to how hazards may be corrected. For detailed information on controls where specific designs must be implemented for such problems as noise, air contaminants, and machine guarding, you may need the services of a professional consultant.

FREQUENTLY VIOLATED REGULATIONS

WALKING AND WORKING SURFACES



GENERAL REQUIREMENTS

1. All places of employment must be kept clean and orderly, and in a sanitary condition. The floors of all work areas must be maintained as dry as possible. Parts storage yards must be maintained so as to minimize tripping and falling hazards. Car bodies should be securely stacked and other parts should be located and stored in such a way that employees are not continually walking on or through them to get from one place to another.

2. Areas that are constantly wet should have nonslip surfaces where employees normally walk or work.

3. Every floor, working place, and passageway must be maintained free from protruding nails, splinters, holes, and loose boards.

4. Where mechanical handling equipment is used, sufficient safe clearances must be provided. Aisles must not be obstructed.

5. Floor load capacities must be posted in a readily visible location (except for slab floors with no basements). The floor load capacity is the maximum weight which can be safely supported by the floor, expressed in pounds per square foot. When this information is not available and when floor load capacity is in doubt, a competent engineer should be consulted.

FREQUENTLY VIOLATED REGULATIONS

WALKING AND WORKING SURFACES (cont.)

FIXED LADDERS MUST:

1. Be designed to withstand a single concentrated load of at least 200 pounds.

2. Have rungs with a minimum diameter of $\frac{3}{4}$ inch for metal ladders or $1\frac{1}{8}$ inches for wood ladders.

3. Have rungs which are at least 16 inches wide and spaced no more than 12 inches apart.

4. Be painted (if metal) or otherwise treated to resist deterioration when location demands.

5. Have a preferred pitch of 75° to 90° for safe descent.

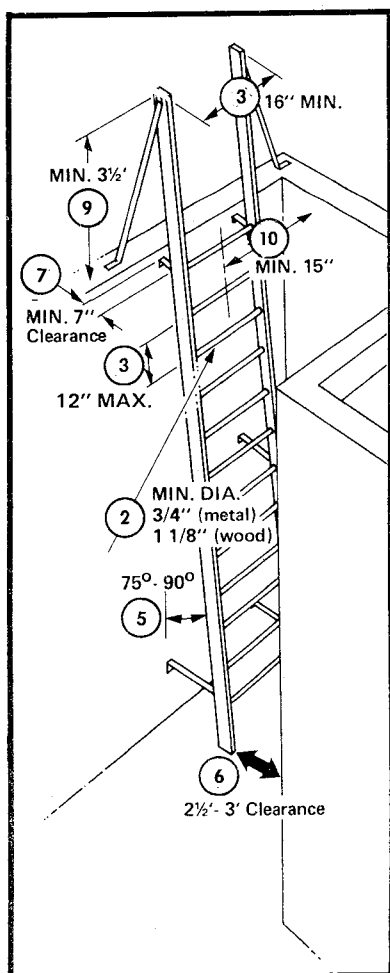
6. Have $2\frac{1}{2}$ feet clearance for ladders with 90° pitch and 3 feet clearance for 75° pitch on the climbing side of the ladder (unless caged).

7. Have at least a 7 inch clearance in back of the ladder to provide adequate toe space.

8. Be equipped with cages if they are longer than 20 feet and have landing platforms if they are longer than 30 feet. A platform every 30 feet for caged ladders and every 20 feet for unprotected ladders is required.

9. Have side rails that extend $3\frac{1}{2}$ feet above landings.

10. Have a clear width of 15 inches on each side of the center line of the ladder (unless caged).



FREQUENTLY VIOLATED REGULATIONS

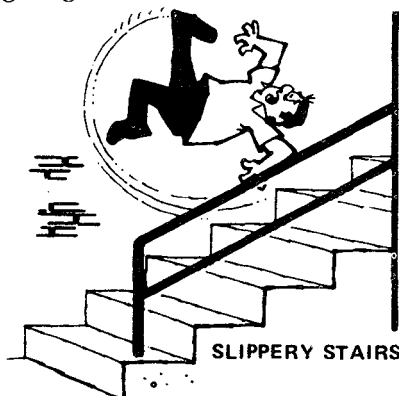
WALKING AND WORKING SURFACES (cont.)

PORTABLE LADDERS

1. Must be maintained in good condition at all times.
2. Should be kept coated with a suitable protective material.
3. Must be inspected frequently. Those which have developed defects must be tagged "DANGEROUS—DO NOT USE" and be removed from service for repair or destruction.
4. Wood ladders should be stored where they will not be exposed to the elements and where there is good ventilation.
5. Metal ladders must not be used near energized electrical equipment.
6. Must be placed so that the side rails have a secure footing. They may not be placed on boxes, barrels, or other unstable bases to obtain additional height. Nonslip bases should be used.
7. Any purchase order for ladders should include the requirement that they meet OSHA standards.

FIXED INDUSTRIAL STAIRS

1. Riser height and tread width must be uniform throughout any flight of stairs.
2. All treads must be reasonably slip resistant.
3. Vertical clearance above any stair tread to any overhead obstruction must be at least seven feet, measured from the leading edge of the tread.

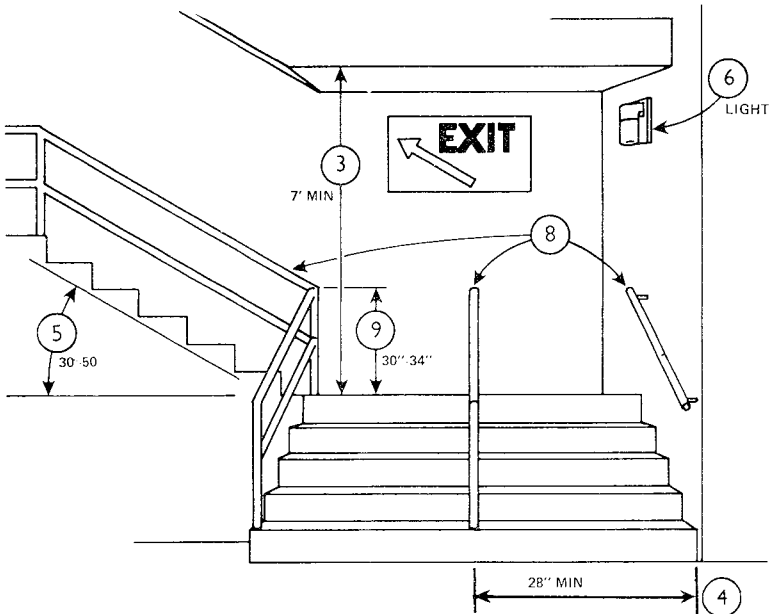


4. The minimum permissible width is 22 inches (if a means of exit access they must be at least 28 inches).

FREQUENTLY VIOLATED REGULATIONS

WALKING AND WORKING SURFACES (cont.)

5. The angle to the horizontal made by the stairs must be between 30° and 50° .
6. All stairs should be adequately lighted.
7. If the tread is less than 9 inches wide, the risers should be open.
8. If the flight of stairs has 4 or more risers:
 - a. a stair railing on each open side is required.
 - b. a hand rail on each enclosed side is required if greater than 44 inches wide.
 - c. and both sides are enclosed on a stairway less than 44 inches wide, at least one handrail is required, preferably on the right side descending.
 - d. and if the stairway is 88 or more inches wide, an intermediate stair railing located midway is required.
9. The vertical height of the railing must be 30 to 34 inches and of construction similar to the standard railing described later in this section.



FREQUENTLY VIOLATED REGULATIONS

WALKING AND WORKING SURFACES (cont.)

THE STANDARD GUARD RAILING AND TOEBOARD

A standard guard railing consists of a top rail, intermediate rail, and posts. The distance from the upper surface of the top rail to the floor, platform, runway, or ramp must be 42 inches. The intermediate rail must be approximately halfway between the top rail and the floor.

A standard guard railing can be of any configuration and construction that meets the basic dimension requirements (42 inches high with midrail) and can withstand 200 pounds applied in any direction at any point on the top rail. For wood railings, the rails and posts must be of at least 2" x 4" stock with posts spaced not more than 6 feet apart. For pipe railings, rails and posts must be at least 1½-inch outside diameter pipe with posts spaced not more than 8 feet apart. Structural steel railings and posts must be of 2" x 2" x ⅜" angles or other metal shapes of equivalent strength with posts spaced not more than 8 feet apart.

The standard toeboard must be approximately 4 inches in height from the floor to its top edge, with no more than a quarter-inch gap between the toeboard and the floor. It may be constructed of any substantial material either solid or perforated, as long as the openings are smaller than one inch.

WHERE A STANDARD GUARD RAILING IS REQUIRED:

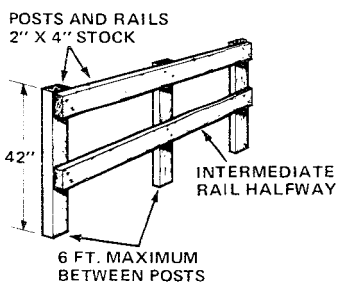
1. Every open-sided floor or platform 4 feet or more above the adjacent floor or ground level must be railed on all open sides except where there is entrance to a ramp, stairway, or fixed ladder.
2. Every stairway floor opening must be guarded on all open sides except the entrance to the stairway.
3. Every ladderway floor opening must be guarded by a standard railing and toeboard on all sides, with passage through the railing constructed so as to prevent a person from walking directly into the opening.
4. Every runway or catwalk 4 feet or more above ground level must have railings on all open sides.

FREQUENTLY VIOLATED REGULATIONS

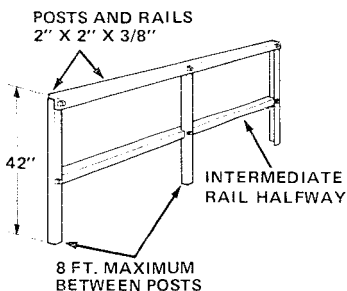
WALKING AND WORKING SURFACES (cont.)

As a general condition: a standard toeboard and railing are required wherever people walk beneath the open sides of a platform or under similar structures or where things could fall from the structure (for example, into machinery below).

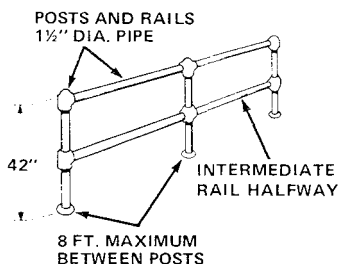
WOOD



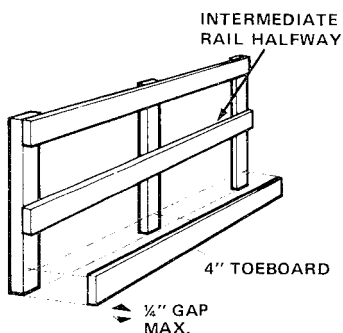
STRUCTURAL STEEL



PIPE



TOEBOARDS



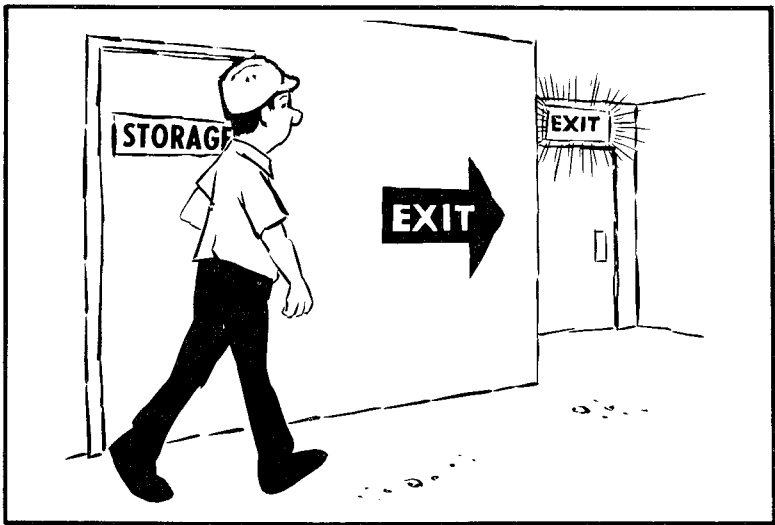
FREQUENTLY VIOLATED REGULATIONS

EXITS AND EXIT MARKINGS

EXITS AND EXIT MARKINGS

1. Every exit must have the word "EXIT" in plain legible letters not less than 6 inches high with the strokes of the letters not less than $\frac{3}{4}$ inch wide.

2. Doors, passageways, or stairways which are neither exits nor ways to an exit, but which may be mistaken for an exit, must be clearly marked "NOT AN EXIT" or must be marked by a sign to indicate their actual use; e.g., "STORAGE ROOM" or "TO BASEMENT."



3. When the direction to the nearest exit may not be apparent to an occupant, an exit sign with an arrow indicating direction must be used.

4. Exit access must be arranged so that it is unnecessary to travel toward any area of high hazard potential in order to reach the nearest exit (unless the path of travel is effectively shielded by suitable partitions or other physical barriers).

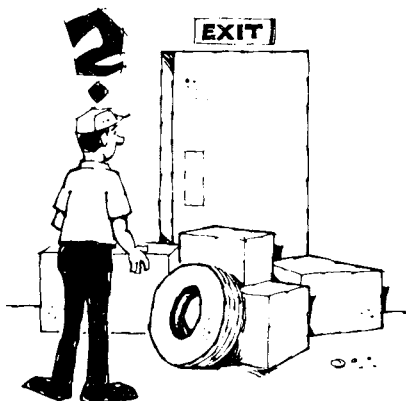
5. Nothing may impair the visibility of the exit sign, such as decorations, furnishings, or other signs.

FREQUENTLY VIOLATED REGULATIONS

EXITS AND EXIT MARKINGS (cont.)

6. A door from a room to an exit or to a way of exit access must be of the side-hinged swinging type. It must swing out in the direction of travel if:

- a. 50 or more persons occupy the room, or
- b. the exit is from an area of high hazard potential.



7. Areas around exit doors and passageways leading to and from the exit must be free of obstructions. The exit route must lead to a public way.

8. If occupancy is permitted at night, or if normal lighting levels are reduced at times during working hours, exit signs must be suitably illuminated by a reliable light source.

9. Where occupants may be endangered by the blocking of any single exit due to fire or smoke, there must be at least two means of egress remote from each other.

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROLS

AIR CONTAMINANTS

Employees may be exposed to fumes, dusts, gases, and vapors resulting from various operations such as welding and cutting, grinding and cleaning parts, spray painting, and the running of internal combustion engines. When workers are exposed to excessive amounts of air contaminants, administrative or engineering controls must be utilized wherever feasible. When such controls are not feasible to reduce exposures to acceptable levels, protective equipment must be used.

Administrative controls limit the amount of time an individual is exposed to a health hazard during a particular operation by rotating two or more workers on the job. The primary method of engineering control is ventilation. Local exhaust ventilation systems are designed to capture and remove excessive fumes and dusts before they escape into the workplace air. General dilution ventilation (when properly designed) will also remove contaminants from the air, but not as efficiently. After careful planning, design, and installation, the ventilation system should be checked and maintained on a regular schedule to ensure its proper operation (e.g., fan belts properly adjusted and duct work kept open).

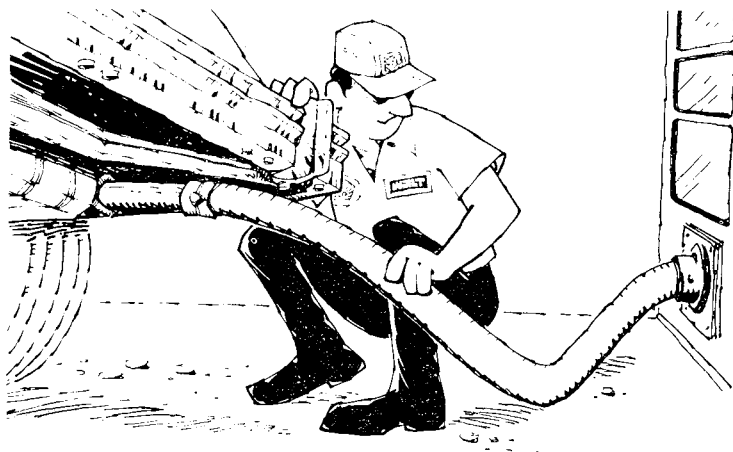
CARBON MONOXIDE

Auto exhaust and space heaters are two sources of carbon monoxide. If employees complain of headaches and environmental controls have not been provided, the CO level may be too high.

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (cont.)

Although general dilution ventilation can be used as an effective control, a tailpipe exhaust system is recommended for the removal of auto exhaust. The ventilation system must be properly designed. As an example, a 300 cubic-inch engine exhausts about 100 cubic feet per minute (cfm) at 600 rpm. There should be a regular inspection program to ensure the system is performing properly. Some possible problems of an exhaust system are: blocking with paper, rags, etc.; fan belts which slip or break; and split or broken hoses.



Space heaters can also be a serious source of carbon monoxide and should be inspected to make sure they are adequately vented and are not blocked.

SOLVENTS (for parts cleaning and paint thinning)

All organic solvents can have some effect on the central nervous system and the skin. Excessive solvent vapor inhalation may cause lack of coordination and drowsiness, which may increase the risk of accidents.

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (cont.)

In other cases, exposure may result in serious damage to the blood, lungs, liver, kidneys, and gastrointestinal tract. You should be aware of the properties and hazards of the solvents used by employees. Although some solvents are less toxic than others, good safety practices dictate that care be exercised in the use of any organic solvent.

Skin contact with solvents may cause dermatitis, ranging in severity from a simple irritation to actual damage to the skin. Even the most inert solvents can dissolve the natural protective barriers of fats and oils, leaving the skin unprotected. When these natural lubricants are removed, the skin become subject to disabling and possibly disfiguring dermatitis or the possibility of serious infection.

Good personal hygiene is essential whenever solvents are used. The skin should always be protected from contact with solvents. Gloves, face shields, goggles, and other protective clothing should be used. Barrier creams may offer some degree of protection. The skin should never be washed with any organic solvent.

LEAD FUMES OR DUSTS

Fumes are very small particles formed by the vaporization of metal during welding or cutting operations. Metal dust is generated by grinding. Lead poisoning may occur through the inhalation and/or accidental ingestion of lead fumes or dust.

The symptoms of lead poisoning include loss of appetite, metallic taste in the mouth, anemia, headache, nervous irritability, muscle and joint pains, and abdominal cramps. Chronic lead poisoning is slow and vague in its beginning and the signs and symptoms are not well defined.

No one symptom indicates the occurrence of lead poisoning. At first one may experience a general ill-feeling, fatigue, exhaustion, irritability, loss of appetite and weight, vague abdominal discomfort, and a yellow discoloration of the skin. Later there may be colic, constipation, and disturbance of sleep. A blue line on the gums is indicative of lead poisoning, as may be the premature loss of teeth. In the advanced stages of chronic lead poisoning, several

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (cont.)

body functions and such organs as the liver and kidneys may be affected.

There is the potential for being exposed to excessive quantities of airborne lead particulate whenever welding or cutting is performed on materials coated with leaded paints or containing lead (e.g., galvanized steel contains lead and zinc).

Good personal hygiene practices on the part of all lead workers must be stressed. Those who work with lead should wash their hands thoroughly before eating. Lead contaminated gloves should be removed and hands washed before smoking to prevent additional lead exposure. Eating must not be allowed in areas where the welding or cutting of lead is performed.

Similar hazards are present in the breakage and salvage of lead acid batteries. Care should be taken that worker exposure to lead fumes and dust is limited through the use of exhaust ventilation or respirators. Again, good personal hygiene practices must be stressed.

ZINC OXIDE FUMES

Excessive exposure to zinc oxide (ZnO) is the most frequent cause of an illness known as metal fume fever. This malady may also be known as zinc chills, shakes, or "Monday morning" fever and is the result of inhalation of fumes from the torch-cutting of zinc-containing alloys such as galvanized steel. Metal fume fever may also follow excessive exposure to fumes of a number of other metals including iron, cadmium, copper, lead, or nickel. The symptoms are similar to those of influenza and usually occur a few hours after exposure. The symptoms include metallic taste in the mouth, dryness of nose and throat, weakness, fatigue, muscular and joint pain, fever, chills, and nausea. These symptoms usually last less than 24 hours and a temporary immunity follows. Therefore, workers are more susceptible on Mondays or on workdays following a holiday, than on other workdays.

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (cont.)

NOISE

Excessive noise can cause permanent hearing damage, yet it is one of the most commonly violated standards. Metal saws are one source of noise in the automotive parts recycling industry. It is management's responsibility to make sure employees are not exposed to noise levels in excess of the standard, which is based upon both sound level and duration of exposure.

For an eight-hour exposure the standard is 90 decibels, A-weighted (dBA). The noise standard is a sliding scale. Exposures of up to four hours at a sound level of 95 dBA, or two hours at a sound level of 100 dBA, etc. (see following table) are allowed if exposures during the remainder of the shift are less than 90 dBA to give the ear a chance to recover. Even at these noise exposure levels, hearing damage may occur in some individuals. It may soon be a requirement, and it is considered good practice, to have hearing checked (audiometric testing) on an annual basis for all employees exposed to noise levels of 85 to 90 dBA for eight hours daily.

When employees are subjected to sound levels exceeding the standard (i.e., greater than 90 dBA for eight hours or 100 dBA for more than two hours), feasible administrative controls, such as limiting time of exposure, or engineering controls must be utilized to reduce noise level or exposure time to comply with the standard. Engineering control methods include the separation and isolation of noisy operations, impact reduction and vibration dampening by lamination or lining with acoustic materials, and process change where applicable. Mufflers on compressed air equipment exhausts and proper lubrication of machinery can also reduce noise levels. Major consideration should be given when purchasing new equipment as to its noise-producing characteristics.

If administrative or engineering controls to lower exposures to acceptable levels are not feasible, personal protective equipment must be provided and its use enforced, and a continuing, effective, hearing conservation program established.

There are many forms and types of ear protection that can be considered such as ear muffs or ear plugs. Some types are more useful than others, depending on the noise level and the frequency

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (cont.)

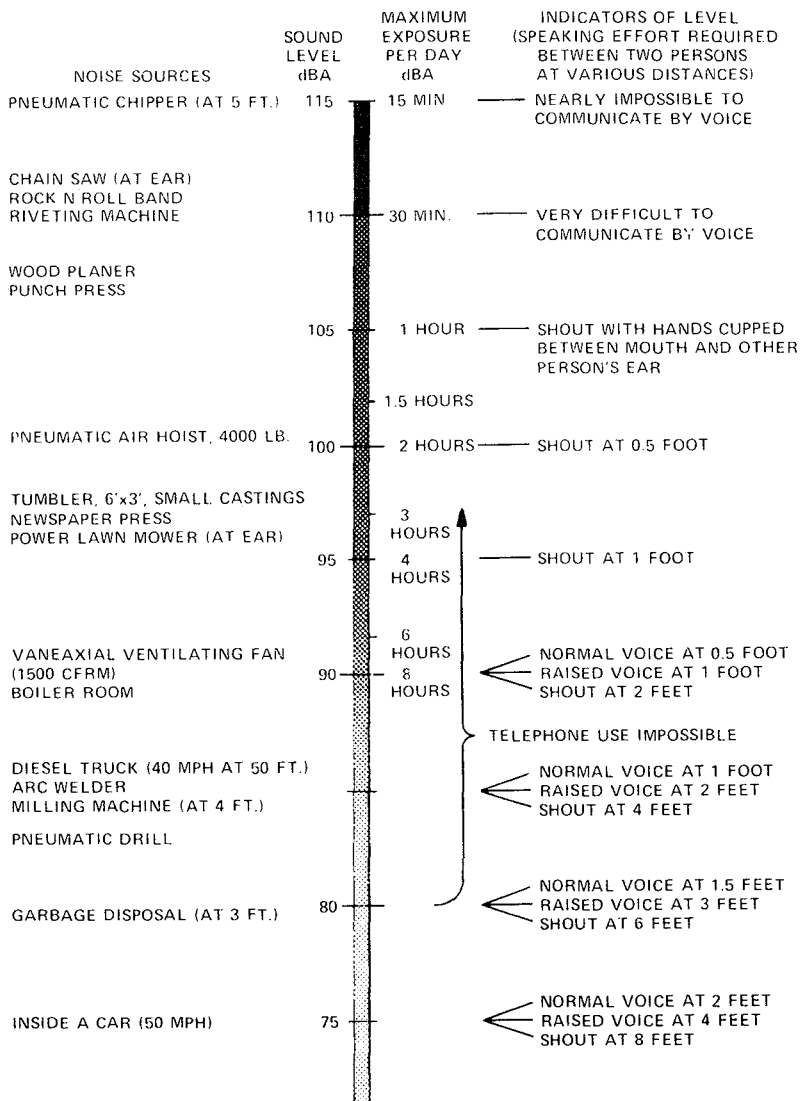
of the noise. It is necessary to provide protection that is effective and reasonably comfortable to the wearer.

The following table is provided to assist in the evaluation of the noise levels in the workplace. If referral to the table indicates that levels and time of exposure are such that corrective action is needed, it is recommended that professional help be sought to correct the problem. A noise survey by adequately equipped and trained personnel should be made before implementing engineering and administrative controls, and/or setting up a hearing conservation program.

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (cont.)

PERMISSIBLE NOISE EXPOSURES



FREQUENTLY VIOLATED REGULATIONS

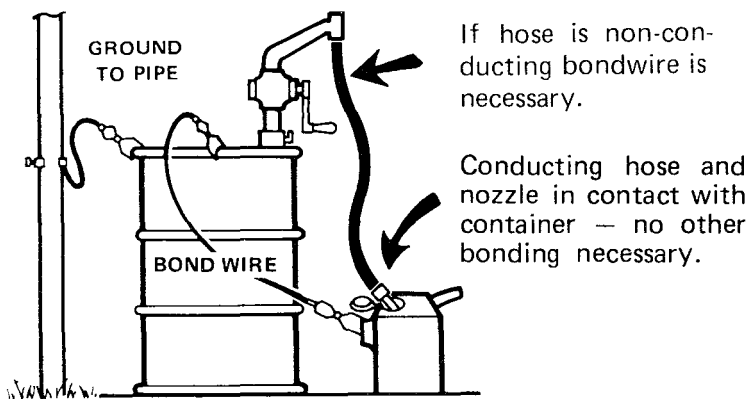
HAZARDOUS MATERIALS

FLAMMABLE AND COMBUSTIBLE LIQUIDS

Flammable and combustible liquids are categorized by their ease of ignition. Flammable liquids are more easily ignited than combustible ones. Examples of flammables are gasoline, acetone and lacquer thinner; examples of combustibles are kerosene, fuel oil, and Stoddard Solvent. Each flammable storage area must be posted "NO SMOKING."

1. Connections on all drums and piped systems of flammable and combustible liquids must be vapor and liquid tight.

2. When flammable liquids are transferred from one container to another (e.g., from a bulk container to a portable container), they must be effectively bonded and grounded. This practice prevents electrical discharge (i.e., sparks) from the accumulation of static charge because of the transfer process.



3. All spills of flammable or combustible liquids must be cleaned up promptly.

4. Supplies of flammable and combustible liquids must be stored in approved fire-resistant safety containers equipped with flash screens and self-closing lids. These containers can be purchased from an industrial supply house.

5. All flammable liquids must be kept in closed containers when not in use.

FREQUENTLY VIOLATED REGULATIONS

HAZARDOUS MATERIALS (cont.)

6. Combustible waste materials, such as oily shop rags or paint rags, must be stored in covered metal containers and disposed of daily.

STORAGE CABINETS

Storage cabinets for flammables must be distinctly labeled **"FLAMMABLE — KEEP FIRE AWAY."** Storage cabinets must meet National Fire Protection Association test requirements.

Metal cabinets must be constructed of at least No. 18 gauge sheet iron, double walled, with a 1½ inch air space between. Doors must have three-point locks with the sill raised at least two inches above the floor of the cabinet.

Wooden cabinets must be constructed of at least one inch plywood with rabbetted joints fastened two-directionally with flat-head screws.

INSIDE STORAGE AREAS

Every inside flammable storage area must be prominently posted as a "NO SMOKING" area. Openings to other rooms or buildings must be provided with non-combustible, liquid-tight, raised sills or ramps at least four inches in height. A permissible alternative to a sill or ramp is an open-grated trench inside of the room which drains to a safe location. General exhaust ventilation (either gravity or mechanical) which provides for a complete change of air within a room at least six times each hour is required for inside storage rooms. Lights and switches must be explosion-proof.

OUTSIDE STORAGE AREAS

Each outside flammable storage area must be prominently posted as a "NO SMOKING" area. The area must be graded so that spills are diverted away from buildings. The storage area must be kept free of combustible debris and weeds.

UNDERGROUND STORAGE TANKS

Underground tanks must be covered with a minimum of two feet of earth or a foot of earth and a slab of concrete at least four inches thick. Where underground tanks are subject to traffic,

FREQUENTLY VIOLATED REGULATIONS

HAZARDOUS MATERIALS (cont.)

they must be covered by at least three feet of earth or 18 inches of earth plus six inches of reinforced concrete or eight inches of asphaltic concrete.

There are times when underground tanks develop leaks and the leakage drains into adjacent basements, pits, sewers, or man-holes. Whenever possible, locate underground tanks as far as possible from below-grade open areas.

Underground storage tanks for flammable liquids such as gasoline have specific venting requirements. Vent pipes must be placed so that the point of discharge is outside of all buildings. The vent pipe must be higher than the fill pipe opening, and not less than 12 feet above the surrounding ground level. Vent pipes must only discharge upward in order to disperse vapors. If the pipe is more than two inches (inside diameter), the outlet must be provided with a vacuum and pressure relief device or there must be an approved flame arrester located in the vent line at the outlet.

GENERAL SPRAY OPERATIONS

1. Portable lamps must be removed during spraying.
2. Low flash-point thinners (less than 100°F) may be used for cleaning purposes only in a well-ventilated area such as a spray booth.
3. Fire control sprinkler heads must be kept clean and free of paint build-up. If bags are used as protective covering for sprinkler heads, only paper should be used.
4. "NO SMOKING" signs must be posted wherever flammable liquids are sprayed or stored.
5. Parts to be painted should be positioned so that overspray and fumes are not drawn through the breathing zone.
6. Protective clothing such as gloves, apron, and a cloth cap should be worn.
7. Respirators must be cleaned and maintained regularly.
8. There should never be over one day's supply of paint outside of storage rooms or cabinets.

FREQUENTLY VIOLATED REGULATIONS

HAZARDOUS MATERIALS (cont.)

SPRAY AREAS

1. The spray area must be at least 20 feet from flames, sparks, spark-producing electric motors, or other ignition sources. All electrical equipment in the spray area must be of the explosion-proof type.
2. The spray area must be free from hot surfaces such as portable heat lamps.
3. Electric lights in the spray area must be covered and guarded against accidental breakage.
4. The spray area must be kept clean of combustible residues.
5. Mechanical ventilation must be provided and operated to remove vapors during painting and drying.

SPRAY BOOTHS

1. Spray booths must be made of metal, masonry, or other suitable noncombustible material and be smooth on the inside to aid in cleaning.
2. Floors and baffles must be noncombustible and easily cleaned.
3. Spray-booth lights must be explosion-proof or enclosed in sealed panels with lights located outside the booth.
4. Ventilation:
 - a. The mechanical ventilation system must be operated during spraying.
 - b. The ventilation rate over the cross section of the booth must be at least 100 linear feet per minute.
 - c. Electric motors for the exhaust fans must be outside the booth or ducts, and the belts and pulleys fully enclosed.
 - d. Air exhausted from the paint booth must be discharged outside where it cannot reenter the building.
 - e. Ducts connected to the booth must have access doors to allow for cleaning.
5. Air supply for paint booths:
 - a. Plugged overspray filters need replacement.
 - b. When temperatures are below 55°, the make-up air must be heated to at least 65°.
 - c. The heater for the make-up air must be located outside the spray booth.

FREQUENTLY VIOLATED REGULATIONS HAZARDOUS MATERIALS (cont.)

PAINT DRYING APPARATUS

1. Mechanical ventilation must be left on while the paint is drying. A warning sign to this effect must be attached to the drying apparatus.

2. The area used for drying with portable heaters or lights must be kept clean of overspray.

3. Heat sources must be kept out of the spray area during spray operations.

4. All electrical drying apparatus must be properly grounded.

FREQUENTLY VIOLATED REGULATIONS

PERSONAL PROTECTIVE EQUIPMENT

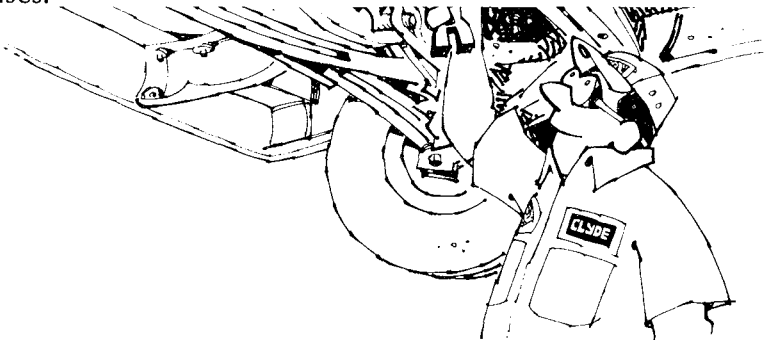
GENERAL

Personal protective equipment must not be used as a substitute for feasible administrative or engineering controls. If these controls are not feasible, personal protective equipment is required whenever employees are exposed to hazards that can do bodily harm through absorption, inhalation, or physical contact. This equipment includes respiratory and protective hearing devices, clothing, and devices for the skin, ears, face, head, eyes, and extremities. All personal protective equipment must be of safe design and construction for the work to be performed and must be maintained in a sanitary and reliable condition.

EYE AND FACE PROTECTION

Eye protection and/or face shields are required where there is a possibility of any eye injury from flying particles, chips, and splashes from liquids such as caustics, solvents, or molten metals. Employees must wear this equipment when using grinders, power drills, pneumatic chisels, etc.

Eye and face protection must be designed to provide adequate protection against the particular hazards to which the employee is exposed. The equipment must be easy to clean and capable of being disinfected. If goggles are worn by persons whose vision requires corrective lenses, the goggles must fit over the glasses or the corrective lenses can be mounted behind the protective lenses.



EYE PROTECTION IS NEEDED WHEN WORKING UNDER CARS.

FREQUENTLY VIOLATED REGULATIONS

PERSONAL PROTECTIVE EQUIPMENT (cont.)

HEAD PROTECTION

Hard hats are required in areas where workers may be subjected to impact from falling or flying objects.

FOOT PROTECTION

Foot protection is required to prevent injury from falling objects, particularly during the receiving and transferring of inventory, when handling heavy parts, and to prevent punctures from sharp edges or points.

HEARING PROTECTION

Appropriate hearing protection must be made available to personnel, and its use enforced where noise levels are in excess of 90 dBA for eight hours. Such sound intensity is likely to occur around powerful motors or high speed tools.

PERSONAL PROTECTIVE CLOTHING

Suitable protective clothing such as gloves, aprons, overalls, or leggings must be worn where there is a hazard to the body from rough or sharp edges, protruding objects, etc.

FREQUENTLY VIOLATED REGULATIONS

PERSONAL PROTECTIVE EQUIPMENT (cont.)

RESPIRATORY PROTECTION

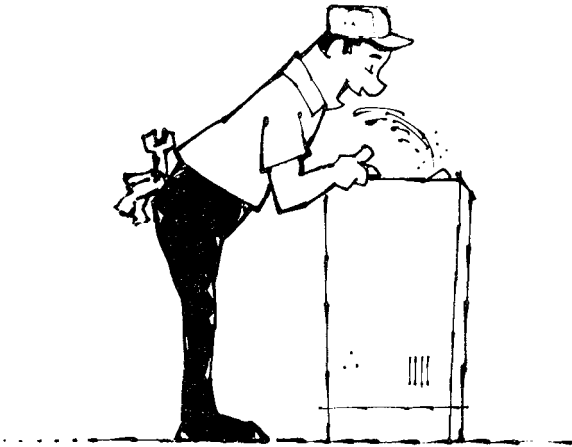
NIOSH-approved respirators must be provided by the employer when air is contaminated with excessive concentrations of harmful dusts, fumes, mists, gases, or vapors. Respirators are acceptable only when engineering or administrative controls are not feasible or while they are being implemented. When respirators are used, a respirator program must be established to include the following requirements:

1. Respirators selected must be designed to protect against the specific hazards to which the worker is exposed.
2. Written instructions covering selection and use of respirators must be available.
3. Employees must be trained in the care and use of respirators, their limitations, proper fitting, and maintenance.
4. Respirators should be cleaned at the end of each day's use. They should be taken apart, washed, dried, and defective parts replaced.
5. Two people cannot wear the same respirator unless it has been cleaned and disinfected between uses.
6. All straps must be tied and adjusted when worn.
7. A good face seal is necessary — beards, sideburns, and glasses may interfere.
8. Filters must be replaced when the respirator has been used for the specified lifetime of the cartridge, when an employee can smell vapors in the mask, or when breathing becomes difficult.

FREQUENTLY VIOLATED REGULATIONS

GENERAL ENVIRONMENTAL CONTROLS

SANITATION



1. Safe drinking water must be provided in all places of employment. The use of a common drinking cup is forbidden.
2. Receptacles for waste food are to be covered and kept in a clean and sanitary condition.
3. Restrooms are to be kept in a clean and sanitary condition.



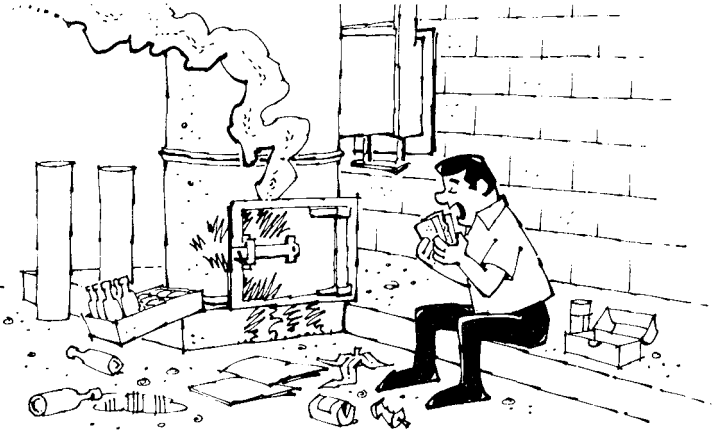
FREQUENTLY VIOLATED REGULATIONS

GENERAL ENVIRONMENTAL CONTROLS (cont.)

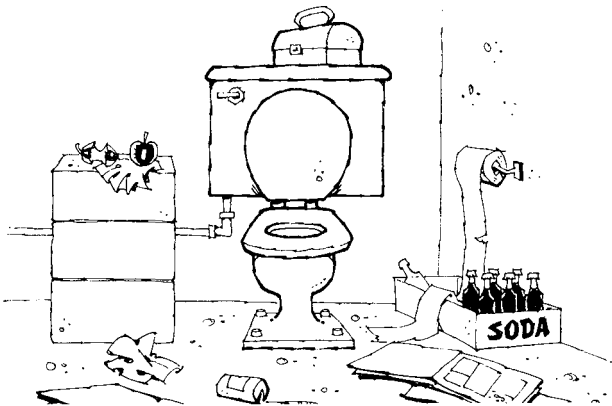
4. Separate toilet facilities must be provided for each sex. If only one person at a time uses a toilet room and the door can be locked from the inside, separate facilities are not required.

5. One toilet and one lavatory must be provided for approximately every fifteen employees.

6. Each lavatory must have hot and cold or tepid running water, hand soap, individual hand towels, or warm air blowers.



7. Beverages or food must not be stored or consumed in a toilet room or in an area exposed to toxic materials.



FREQUENTLY VIOLATED REGULATIONS
GENERAL ENVIRONMENTAL
CONTROLS (cont.)



8. Employees working with toxic substances should wash and, where necessary, change from contaminated clothing before eating, drinking, or smoking.

FREQUENTLY VIOLATED REGULATIONS

MEDICAL AND FIRST AID

The employer interested in maintaining production, preventing loss of work time, receiving efficient employee performance, and achieving good morale should adopt ways of preserving employees' health. A good practice is to require preplacement medical examinations to ensure that prospective employees are physically able to do the specific work. Periodic health evaluations for hazardous jobs and early treatment of any illness or injury should also be encouraged. Medical personnel must be readily available by phone for advice and consultation.

Emergency phone numbers should be posted near telephones (see "Emergency Information Chart" on the back cover). Stretchers and blankets should be available for prompt transportation of injured or ill employees to a hospital.



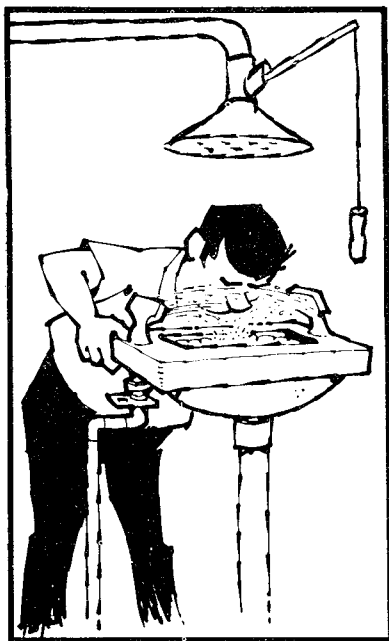
In the absence of an infirmary, clinic, or hospital which is used for treatment of injured or ill employees in near proximity to the workplace, the following are required:

1. At least one and preferably more employees on each shift must be adequately trained to render first aid. The American Red Cross, the U.S. Bureau of Mines, some insurance carriers, local safety councils, and others with OSHA approved programs provide acceptable training.

FREQUENTLY VIOLATED REGULATIONS

MEDICAL AND FIRST AID (cont.)

2. First aid supplies approved by a consulting physician must be readily available. These supplies should be in sanitary containers with individually sealed packages for material such as gauze, bandages, and dressings that must be sterile. Other items often needed are adhesive tape, triangular bandages (to be used as slings), inflatable plastic splints, scissors, and mild soap for cleansing of wounds or cuts.



3. Suitable facilities for quick drenching or flushing of the eyes and body must be provided within the work area when a person may be exposed to injurious corrosive materials.

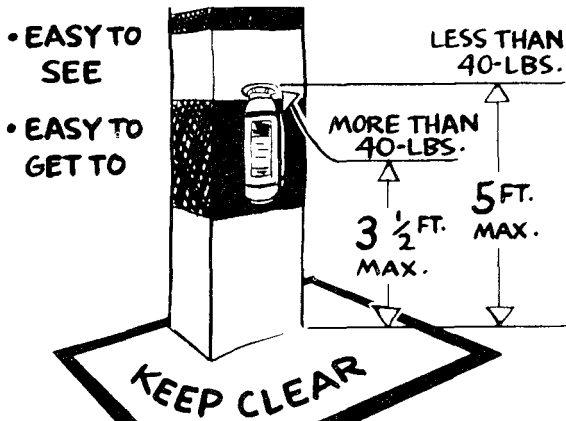
Some states have laws concerning first aid requirements including supplies (kits), training, and instructions on first aid given by the lay person. Trained employees should understand where first aid ends and treatment by a physician begins.

NOTE: First aid is immediate, temporary treatment given in the event of accident or illness — before the doctor arrives. Immediate first aid (within four minutes) may be the difference between complete recovery, permanent impairment, or death.

“Recordkeeping Requirements” toward the back of this Guide discusses records which must be maintained for occupational injuries and illnesses.

FREQUENTLY VIOLATED REGULATIONS

FIRE PROTECTION



PORTABLE FIRE EXTINGUISHERS MUST:

1. be kept fully charged and in their designated places.
2. be located along normal paths of travel.
3. not be obstructed or obscured from view.
4. not be mounted higher than 5 feet (to the top of the extinguisher) if 40 pounds or less, or 3½ feet if heavier.
5. be inspected by management or a designated employee at least monthly to ensure that they:
 - a. are in their designated places.
 - b. have not been tampered with or actuated.
 - c. do not have corrosion or other impairment.
6. be inspected at least yearly and/or recharged or repaired to insure operability and safety. A tag must be attached to show the maintenance or recharge date and signature or initials of the person performing the service.
7. be hydrostatically tested. The extinguisher sales representative usually will perform this service at appropriate intervals.
8. be selected on the basis of type of hazard, degree of hazard, and area to be protected.
9. be placed so that the maximum travel distances, unless there are extremely hazardous conditions, do not exceed 75 feet for Class A or 50 feet for Class B.

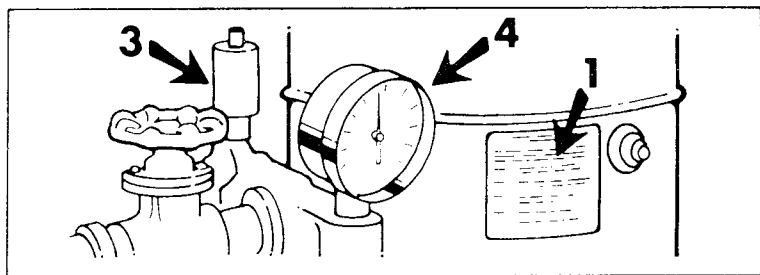
A chart showing fire extinguishers by class and how to use them, is located in the back of this booklet.

FREQUENTLY VIOLATED REGULATIONS

COMPRESSED AIR EQUIPMENT

Employees should be familiar with the air compressor's operating and maintenance instructions.

1. New air tanks must be constructed in accordance with the American Society of Mechanical Engineers (A.S.M.E.) Boiler and Pressure Vessel Code, Section VIII. The A.S.M.E. Code requires this information to be permanently stamped on the air tank.



2. The drain valve on the air tank should be opened frequently to prevent excessive accumulation of liquid.

3. Air tanks must be protected by adequate safety-relief valve(s). These valves must be tested at regular intervals to be sure they are in good operating condition.

4. The pressure controller and gauge must be maintained in good operating condition.

5. There must be no valves between the air tank and the safety valve.

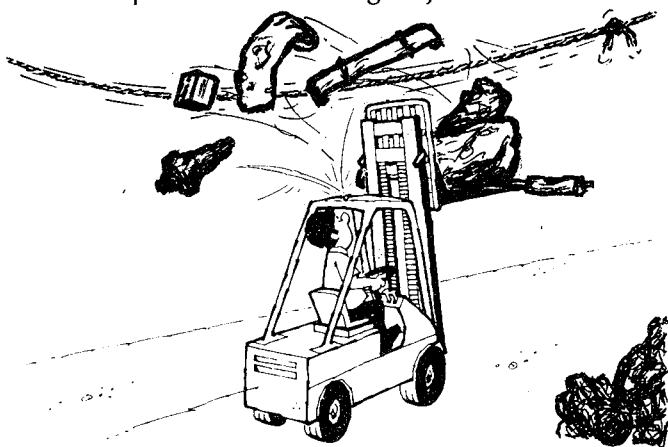
FREQUENTLY VIOLATED REGULATIONS

MATERIALS HANDLING AND STORAGE

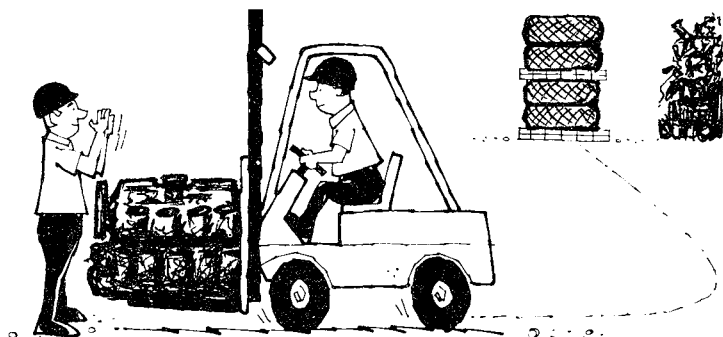
POWERED INDUSTRIAL TRUCKS

Powered industrial trucks are classified into categories for the purpose of determining what type of truck may be used in a certain location. The type of hazard in a location determines whether diesel, electric, gasoline, or LP-gas powered trucks may be used and what additional safeguards must be present. Suppliers can assist in the proper selection.

1. High-lift-rider trucks must be fitted with an overhead guard to protect the operator from falling objects.

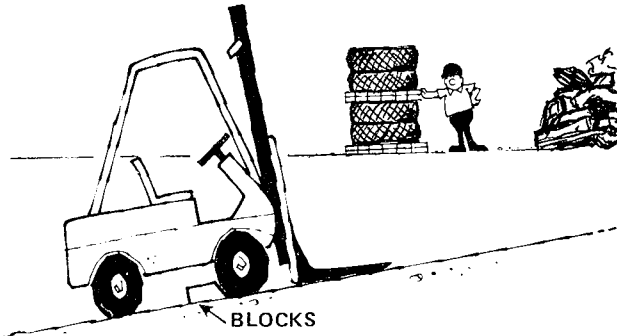


2. Methods must be developed and used to effectively train operators in the safe operation of powered industrial trucks, and only trained and authorized employees may operate the truck.



FREQUENTLY VIOLATED REGULATIONS

MATERIALS HANDLING AND STORAGE (cont.)



3. When a powered industrial truck is left unattended (operator 25 feet or more away or truck is not in view), the forks must be fully lowered, the control lever positioned in neutral, the power shut off, and the brakes set. The wheels must be blocked if parked on an incline.

4. Industrial trucks must be examined daily for any conditions adversely affecting the safety of the vehicle before being placed into service. If the truck is used around the clock, it must be inspected after each shift.



5. If the load being carried obstructs forward view, the operator is required to travel with the load trailing.

6. When unloading or loading from trucks, trailers, or railroad cars with forklift trucks, provision must be made for securing the truck, trailer, or railroad car by setting the brakes and placing wheel chocks under the rear wheels. Portable dock boards must be se-

FREQUENTLY VIOLATED REGULATIONS

MATERIALS HANDLING AND STORAGE (cont.)

cured in position with devices which will prevent their slipping during loading and unloading.

7. If battery-operated equipment is used, the battery charging area is to be designated as a "NO SMOKING" area due to the hydrogen gas emitted during the charging process.

HOISTS

Although the information provided in this section on hoists pertains specifically to cranes, these requirements should be applied to all hoisting equipment.

1. The rated load capacity must be legibly marked on each side of the hoist. Employees should be made aware of the weight of the load.

2. The hoist must be equipped with a self-setting brake applied to the motor shaft or some part of the gear train.

3. For powered hoists, holding brakes must be applied automatically when the power is off.

4. Hooks, chains, and all functional operating mechanisms must be visually inspected daily for any indication of damage and wear, and monthly records must be maintained.

5. Loads must not be carried over the heads of people.

6. The operator must test the brakes each time a near-capacity load is handled. This test is done by raising the load a few inches and applying the brakes.

7. The hoist rope or chain must be free from kinks or twists and must not be wrapped around the load.

FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE GUARDING

GENERAL REQUIREMENTS FOR MACHINE GUARDING

One or more methods of machine guarding must be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, in-running nip points, rotating parts, flying chips, and sparks. All such hazards located seven feet or less above the ground, floor, or working platform, must be guarded to prevent accidental contact. Guards must be attached to the machine or secured elsewhere if attachment to the machine is not possible. The guard must not offer an accident hazard in itself. Machines designed for fixed locations must be securely anchored to prevent "walking" or tipping.

A booklet entitled "The Principles and Techniques of Mechanical Guarding," OSHA 2057, can be obtained by writing to the OSHA Regional Offices listed in the back of this book. Many equipment representatives can assist in obtaining the necessary protective devices.

The following pages contain examples of hazards, methods of guarding, and illustrations of guards.

ROTATING, RECIPROCATING, AND TRANSVERSE MOTION

Rotating, reciprocating, and transverse motions create hazards in two general areas—at the point of operation where work is being done and at the point where power or motion is being transmitted from one part of a mechanical linkage to another. Even smooth, slowly rotating shafts can grip clothing or hair and, through mere skin contact, force an arm or hand into a dangerous position.

Collars, couplings, cams, clutches, flywheels, shaft ends, spindles, rotating bar stock, lead screws, and horizontal or vertical shafting are typical examples of common rotating mechanisms which are hazardous. The danger increases when rotating bolts, oil cups, nicks, abrasions, and projecting keys or screw threads are exposed.

FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE GUARDING (cont.)

CUTTING ACTIONS

Cutting action results when rotating, reciprocating, or transverse motion is imparted to a tool so that the material removed is in the form of chips. The danger of cutting action exists at the movable cutting edge of the machine as it approaches or comes in contact with the material being cut. Such action takes place at the point of operation in cutting wood, metal, or other materials as differentiated from punching, shearing, or bending by press action.

Typical examples of mechanisms involving cutting action include band and circular saws, milling machines, planing or shaping machines, turning machines, boring or drilling machines, and grinding machines.

IN-RUNNING NIP POINTS

In-running nip points are a special danger caused by the action of rotating objects. Whenever machine parts rotate toward each other, or where one rotates toward a stationary object, an in-running nip point is formed. Objects or parts of the body may be drawn into this nip point and be bruised and crushed.

Typical examples of nip point hazards are the in-running side of a chain and sprocket, belt and pulley, a gear rack, a gear and pinion, and a belt conveyor terminal.

FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE GUARDING (cont.)

PUNCHING, SHEARING, AND BENDING ACTIONS

Punching, shearing, or bending action results when power is applied to a ram (plunger) or knife for the purpose of blanking, trimming, drawing, punching, shearing, or stamping metal or other materials as differentiated from removing the material in the form of chips. The danger of this action lies at the point of operation where stock is actually inserted, maintained, and withdrawn.

Typical examples of this type of equipment include power presses, foot and hand presses, bending presses or brakes, as well as squaring, guillotine, and alligator shears.

CLASSIFICATION OF GUARDS

The methods of guarding may be grouped under four main classifications:

ENCLOSURE GUARDS

Fixed enclosure guards should be used in preference to all other types. They prevent access to the point of operation by enclosing a hazardous operation completely, and can be used to prevent scrap stock from flying about. Because of the limited feed-size opening, enclosure guards admit stock, but will not admit an employee's hand into the danger zone. They may be constructed so as to be adjustable to different sets of tools and dies, but once adjusted, should be fixed. As a general rule, power transmission apparatus can be protected by enclosure guards.

INTERLOCKING GUARDS

When a fixed enclosure guard is not practicable, an interlocking enclosure or barrier should be considered as the first alternative.

An interlocking enclosure guard is not fixed and may be opened or adjusted as the operation requires. These guards utilize an electrical or mechanical connection interlocked with the operating mechanism to prevent the operation of the machine until the guard is returned to the closed position and the operator can no longer reach the point of danger.

FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE GUARDING (cont.)

AUTOMATIC GUARDS

When enclosure or interlocking guards are not practicable, an automatic guard may be used.

An automatic guard acts independently of the operator, and repeats its cycle as long as the machine is in motion. This type of guard removes the operator's hands, arms, or body from the danger zone as a ram, plunger, or other tool closes on the item being worked. It is operated by the machine itself through a system of linkages connected to the operating mechanism.

Common types of automatic guards are sweep and push-away devices, moving barriers which cross the danger zone when the machine is activated, and pull-away devices consisting of hand and arm attachments which pull the operator away from the danger zone.

TWO-HANDED OPERATING DEVICES

Two-handed operating devices, another category of guarding mechanism, are also designed to protect a machine operator from point of operation hazards. Although they are not guards in the technical sense, they serve the same purpose, and can also be used to complement one of the other types of guards.

These devices may be used to activate the machine. They require simultaneous action of the operator's hands on electrical switch buttons, air control valves, mechanical levers, etc. Hand controls may be interconnected with foot controls to permit operation of the machine. The actuating controls must be so located as to make it impossible for the operator to be able to move his hands from the controls to the danger zone before the machine has completed its closing cycle. The two-handed controls must be so designed as to prevent the blocking, tying down, or holding down of one control to allow one hand free access to the point of operation.

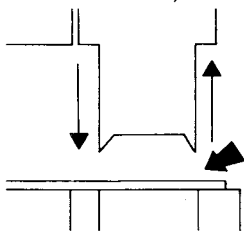
FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE

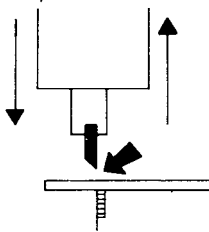
GUARDING (cont.)

EXAMPLES OF ACTIONS AND MOTIONS REQUIRING GUARDING

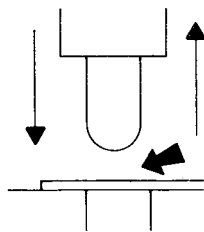
PUNCHING, SHEARING, AND BENDING



Punching

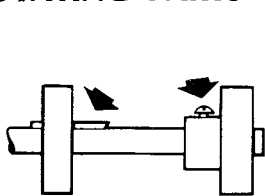


Shearing

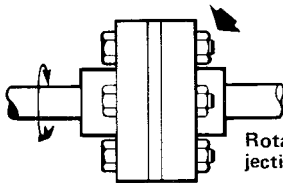


Bending

ROTATING PARTS

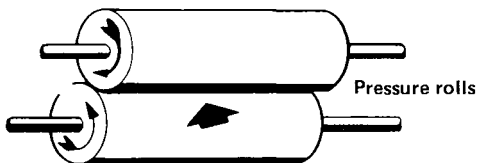


Rotating shaft and pulleys with projecting key and set screw

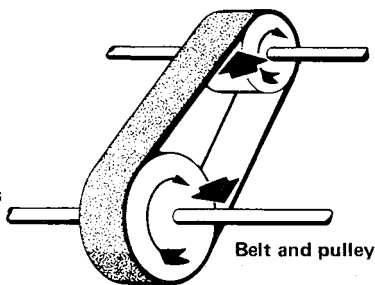


Rotating coupling with projecting bolt head

IN-RUNNING NIP POINTS

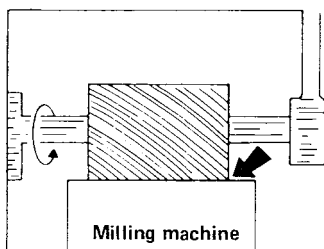


Pressure rolls

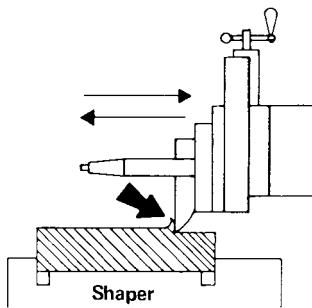


Belt and pulley

CUTTING



Milling machine



Shaper

FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE GUARDING (cont.)

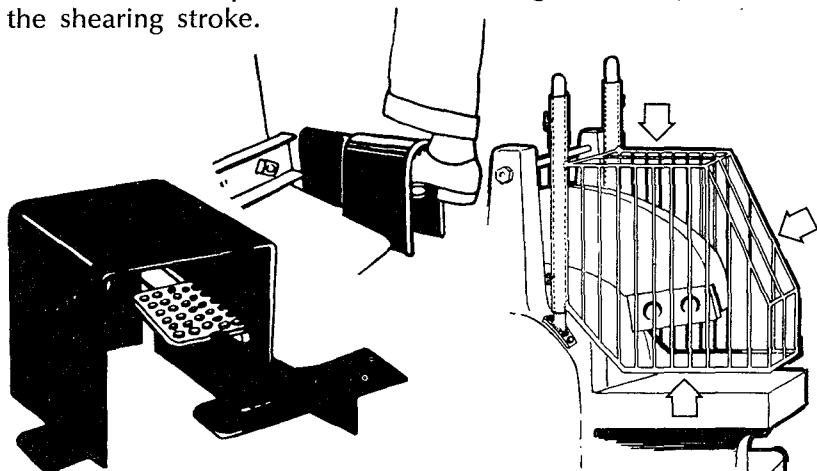
SCRAP PROCESSING EQUIPMENT ALLIGATOR SHEARS AND METAL SCRAP NOTCHERS

Alligator shears and scrap notchers must be equipped with point of operation guards to prevent the employee from inserting hands into the danger zone. A typical point of operation guard is shown in the figure below. This type of guard is adaptable to most alligator shears and modes of use. It can be designed to fit with a clearance of from one to two inches between the moving arm and the guard. Workers should be trained by supervisors or other experienced personnel in the techniques of using holding tools to handle small parts and in the correct operation of the shear's controls.

The operator and other employees in the vicinity must wear protective goggles or face shields with safety glasses as a protection against flying fragments.

On foot-operated hydraulic alligator shears, the pedal should have a protective guard to prevent unplanned operation caused by falling objects or someone's accidentally stepping on it.

A holddown device should be provided at the infeed side of the shear to keep the stock from being forced upward during the shearing stroke.



Treadle guards for shears (to prevent tripping)

ALLIGATOR SHEARS
Enclosure guard.

FREQUENTLY VIOLATED REGULATIONS MACHINERY AND MACHINE GUARDING (cont.)

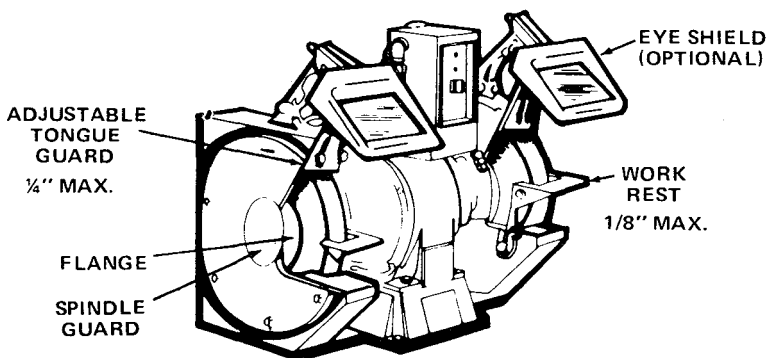
GRINDERS

1. Wheel safety guards must cover the spindle end, nut, and flange projections. The exposed area of the grinding wheel and sides for the safety guards should not exceed more than one-fourth of the entire wheel. When the guard opening is measured, the visor or other accessory equipment is not included as a part of the guard unless this accessory equipment is as strong as the guard.

2. Work or tool rests must be of strong construction and must be adjustable to compensate for wheel wear. Work rests must be closely adjusted to the wheel, with a maximum clearance of $\frac{1}{8}$ inch, to prevent the work from becoming jammed between the wheel and the work rest.

3. Tongue guards must be constructed so that the tongue guard can be adjusted to the constantly decreasing diameter of the wheel. The distance between the tongue guard and the wheel must never be more than $\frac{1}{4}$ inch.

4. Goggles or a face shield must be worn by the operator.



FANS

If fans are located within seven feet of the floor, they must be guarded with grille or mesh, limiting openings to not more than $\frac{1}{2}$ inch (least dimension).

AIR COMPRESSORS

Air compressor flywheels and drive pulleys must be fully enclosed.

FREQUENTLY VIOLATED REGULATIONS

HAND AND PORTABLE POWERED TOOLS

The following is a partial list of regulations governing use of hand tools:

1. Each employer is responsible for the safe condition of tools and equipment used by employees, including tools and equipment which may be furnished by employees.

2. Hammers with broken or cracked handles, chisels and punches with mushroomed heads, or bent or broken wrenches should not be used.



3. Most hand-held powered tools must be equipped with a "dead-man" or "quick release" control so that the power is automatically shut off whenever the operator releases the control.

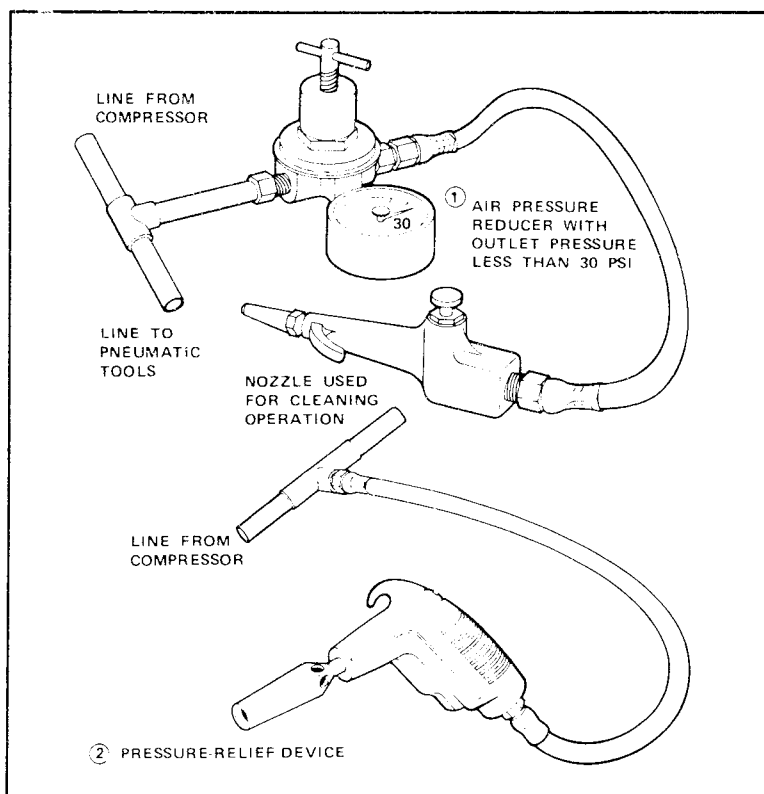
4. Portable circular saws must be equipped with guards above and below the base plate or shoe. The lower guard must retract when the blade is in use, and automatically return when the tool is withdrawn from the work.

5. All hand-held portable electrical equipment must have its frame grounded or be double-insulated and identified as such.

FREQUENTLY VIOLATED REGULATIONS

HAND AND PORTABLE POWERED TOOLS (cont.)

Beware of compressed air, it can be dangerous. Alternate methods of cleaning surfaces should be sought. Compressed air should **never** be used to blow debris from a person. Compressed air may be used if no other method of cleaning surfaces is acceptable. The downstream pressure of compressed air must remain at a pressure level below 30 psi whenever the nozzle is dead-ended and then only when effective chip guarding and personal protective equipment are used. Two acceptable methods of meeting the 30 psi requirement are illustrated.

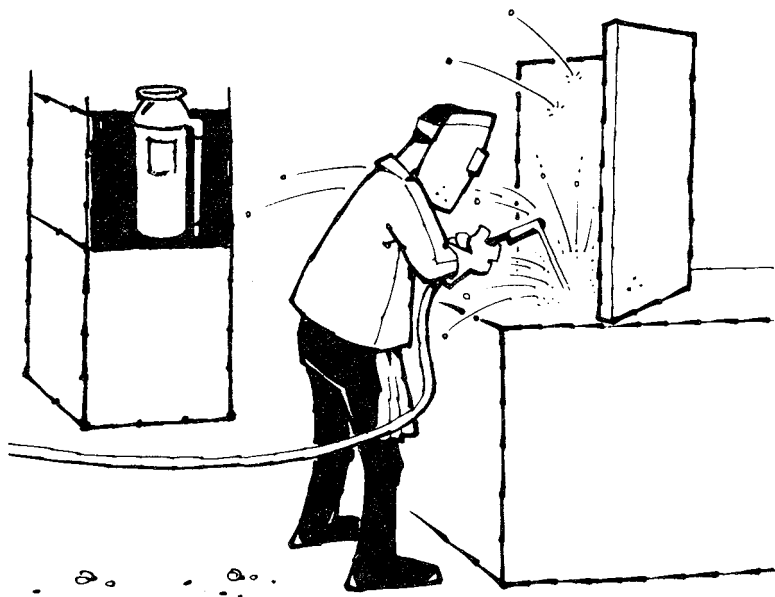


FREQUENTLY VIOLATED REGULATIONS

WELDING, CUTTING, AND BRAZING

GENERAL

1. Management must establish areas for cutting and welding operations based on the fire potential present and must establish special procedures for welding and cutting operations. Preferably, cutting or welding should be done in an area with no surrounding combustible materials. If combustibles in the immediate vicinity are unavoidable, guards must be used to protect against the fire hazards from heat and sparks. Suitable fire extinguishing equipment (pails of water, buckets of sand, hose, or portable extinguisher) must be maintained for instant use.



FREQUENTLY VIOLATED REGULATIONS

WELDING, CUTTING, AND BRAZING (cont.)

2. Torch cutters and welders must be suitably trained in the safe operation of their equipment. Printed rules and manufacturers' instructions covering operation of equipment must be strictly enforced.

3. The atmosphere in the welding area must be free of flammable gases, liquids, and vapors.

4. Goggles or other suitable eye protection (helmets, hand shields) must be used during welding or cutting operations as a protection against sparks and debris.

5. Employees adjacent to the welding areas must be protected from ultraviolet rays by non-combustible or flameproof screens or shields, or they must be required to wear appropriate goggles.

6. Employees exposed to hazards created by cutting and welding must be protected by personal protective equipment. For example:

- a. Flameproof gauntlet gloves (except when engaged in light work) should be worn.

- b. Flameproof aprons (leather, for example) may be desirable as protection against sparks and radiant heat.

- c. Fire resistant leggings or high boots should be worn.

7. The potential health hazard to a welder or cutter from gases or metal fumes depends on the toxicity of the materials involved (types of metals, fluxes, coatings, etc.), the duration and location of the operation, and ventilation.

8. There are specific requirements concerning ventilation and respirators when welding or cutting on the following:

- a. stainless steel, lead, zinc, or cadmium

- b. metals coated with lead or mercury-containing materials such as paint

- c. fluxes or other materials containing fluorides.

FREQUENTLY VIOLATED REGULATIONS WELDING, CUTTING, AND BRAZING (cont.)

REQUIREMENTS FOR VENTILATION AND RESPIRATORS WHEN WELDING OR CUTTING

*Welding or Cutting on Materials
Containing or Coated With*

Location of Operation

*Confined
Spaces*

Indoors

Outdoors

Lead	A	B	E
Zinc	A	B	
Fluorine	A	C	C
Cadmium	C	C	F
Beryllium	D	D	D
Mercury	C	C	F

Stainless Steel = mechanical ventilation adequate to remove the fumes generated.

A = Adequate ventilation to prevent the accumulation of toxic materials or possible oxygen deficiency. Where it is impossible to provide such ventilation approved airline respirators must be used.

B = Mechanical local exhaust by means of hoods or booths with sufficient airflow to maintain a velocity, away from the worker, of at least 100 linear feet per minute.

C = If conditions warrant, mechanical local exhaust (B) or approved airline respirators.

D = If conditions warrant, mechanical local exhaust (B) and approved airline respirators.

E = Approved respirators.

F = If conditions warrant, approved respirators (E).

9. Mechanical ventilation must be provided when welding or cutting is done on metals not covered in the table when:

- there is less than 10,000 cubic feet of volume per welder.
- the ceiling is less than 16 feet high.
- work is performed in confined spaces.

Such mechanical ventilation must be at the minimum rate of 2,000 cubic feet per minute per welder, unless hoods or booths are provided with sufficient airflow to maintain a velocity, away from the worker, of at least 100 linear feet per minute. Alternatively, NIOSH approved supplied-air respirators must be used.

10. Hoses and cables showing leaks, burns, or worn places which render them unfit for service must be replaced or repaired.

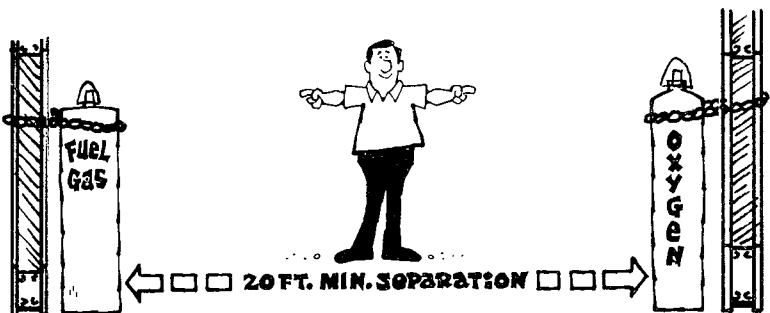
FREQUENTLY VIOLATED REGULATIONS WELDING, CUTTING, AND BRAZING (cont.)

COMPRESSED GAS



GAS WELDING

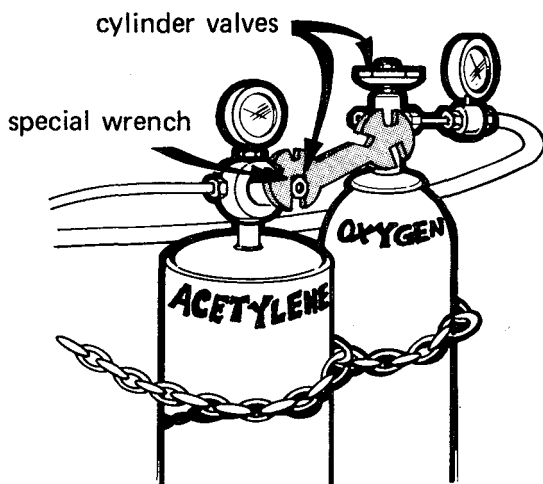
1. All cylinders must be stored away from radiators and other sources of heat.
2. All cylinders stored inside buildings are required to be located in a well-protected, well-ventilated, dry location at least 20 feet from highly combustible materials and away from elevators, stairs, or gangways. They are not to be kept in unventilated enclosures such as lockers and cupboards.
3. Valve protection caps must be utilized where the cylinder is designed to accept a cap, except when cylinders are in use or connected for use.



4. Stored oxygen cylinders must be separated from stored fuel gas cylinders or combustible materials (especially oil or grease) by a minimum distance of 20 feet or by a non-combustible barrier

FREQUENTLY VIOLATED REGULATIONS WELDING, CUTTING, AND BRAZING (cont.)

at least five feet high and having a one-half hour fire resistance rating. Sheet metal plates are not an effective method for separating cylinders.



5. All cylinder valves must be closed when work is finished. Where a special wrench is required, it must be left in position on the stem of the valve while the cylinder is in use so that the fuel-gas flow can be quickly turned off in case of emergency. In the case of manifolded or coupled cylinders, at least one such wrench must always be available for immediate use.

6. All cylinders must be legibly marked to identify contents.

7. No cylinder should be permitted to stand alone without being secured with a lashing or chain to prevent it from toppling over.

8. Acetylene must not be utilized at a pressure in excess of 15 psi gauge (or 30 psi absolute). Acetylene may become unstable above this pressure.

9. Indoor storage of fuel gas is limited to a total capacity of 2,000 cubic feet or 300 pounds of liquified petroleum gas.

FREQUENTLY VIOLATED REGULATIONS

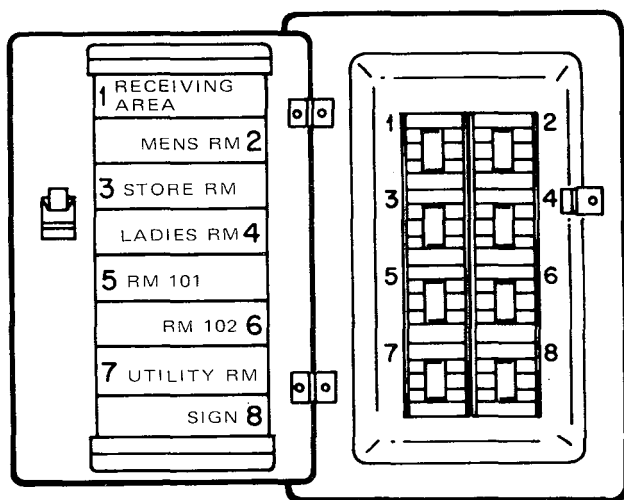
THE NATIONAL ELECTRICAL CODE (NEC)

ELECTRICAL REQUIREMENTS

More fires are caused by electrical malfunction than any other cause, and standards pertaining to electrical equipment and its use in all industries have been cited as violations more frequently than any others.

The National Electrical Code, NFPA 70-1971; ANSI C1-1971 has been adopted as a national consensus standard by OSHA (refer to "Information Sources"). The purpose of the NEC is the practical safeguarding of persons and buildings and their contents from hazards arising from the use of electricity. The code contains basic minimum provisions considered necessary for safety. The electrician should be familiar with these requirements.

1. Each disconnecting means (e.g., circuit breaker or fuse box) must be legibly marked to indicate its purpose unless its purpose is evident.



Proper labeling of circuit breakers.

FREQUENTLY VIOLATED REGULATIONS

THE NATIONAL ELECTRICAL CODE (NEC) (cont.)

2. Frames of electrical motors, regardless of voltage, must be grounded.

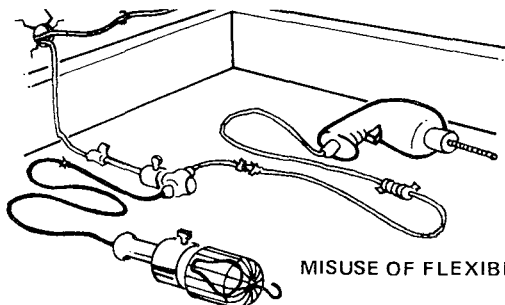
3. Exposed noncurrent-carrying metal parts of fixed equipment that may become energized under abnormal conditions must be grounded under any of the following circumstances:

- a. in wet or damp locations.
- b. if in electrical contact with metal.
- c. if operated in excess of 150 volts to ground.
- d. in a hazardous location.

4. Exposed noncurrent-carrying metal parts of the following plug-connected equipment, which are liable to become energized, must be grounded or double-insulated and distinctly marked:

- a. portable, hand-held, motor-operated tools
- b. appliances
- c. any equipment operated in excess of 150 volts to ground.

5. Outlets, switches, junction boxes, etc. must be covered.



6. Flexible cords may not be:

- a. used as a substitute for fixed wiring.
- b. run through holes in walls, ceilings, or floors.
- c. run through doors, windows, etc.
- d. attached to building surfaces.

FREQUENTLY VIOLATED REGULATIONS

THE NATIONAL ELECTRICAL CODE (NEC) (cont.)

7. Flexible cord must be fastened so that there is no pull on joints or terminal screws. It must be replaced when frayed or when the insulation has deteriorated.

8. All splices in flexible cord must be executed by brazing, welding, or soldering, or by joining the conductors with suitable splicing devices. Any splices, joints, and the free ends of conductors must be properly insulated.

RECORDKEEPING REQUIREMENTS

Recordkeeping requirements under OSHA compile factual information about accidents that have happened. These records provide employers with a measure for evaluating the success of their safety and health activities and of identifying high risk areas of their businesses to which attention should be directed. Employers must report within 48 hours to OSHA (or a state agency in states which have operational safety and health plans) any incident or accident which results in hospitalization of five or more employees or a fatality.

Federal regulations require that employers with 11 or more employees at any time during the preceding calendar year are required to complete OSHA Forms 100, 101 (or equivalent), and 102. The following cases must be recorded on the OSHA Form 100 (Log of Occupational Injuries and Illnesses): every death, every illness, and any injury which results in loss of consciousness, loss of time, restriction of work or motion, temporary or permanent transfer to another job, or medical treatment other than first aid. Illnesses and injuries are classified as to lost workdays, restriction of duties or "light duty," and no lost time.

A supplementary record must be completed for each recordable case. OSHA Form 101 may be used; a state workers' compensation report or other form is acceptable if it contains the equivalent information as the OSHA 101. Forms 100 and 101 must be kept current to within six days.

An annual summary, OSHA Form 102 must be posted for the entire month of February in a place where all employees are likely to see it. All of these forms (100, 101, and 102) must be retained for five years, excluding the current calendar year.

A booklet "Recordkeeping Requirements Under the Williams-Steiger Occupational Safety and Health Act of 1970" which provides a supply of forms and more detailed information is available from OSHA regional or area offices or from the regional offices of the Bureau of Labor Statistics.

Employers are also required to maintain accurate records of certain potentially toxic or harmful physical agents which must be monitored or measured and to promptly advise employees of any excessive exposure and the corrective action taken. In certain

RECORDKEEPING REQUIREMENTS (cont.)

cases, physical examinations and testing are required. Examples of these agents are asbestos, ionizing radiation, etc. Any OSHA office can supply a list of these hazardous substances and explain what records may be required.

RECORDKEEPING REQUIREMENTS (cont.)

Employers must post one of the full size versions (10x16) of this type of OSHA poster or a state-approved poster where required.

job safety and health protection

The Occupational Safety and Health Act of 1970 provides job safety and health protection for workers through the promotion of safe and healthful working conditions throughout the Nation. Requirements of the Act include the following:

Employers:

Each employer shall furnish to each of his employees employment and a place of employment free from recognized hazards that are causing or are likely to cause death or serious harm to his employees; and shall comply with occupational safety and health standards issued under the Act.

Employees:

Each employee shall comply with all occupational safety and health standards, rules, regulations and orders issued under the Act that apply to his own actions and conduct on the job.

The Occupational Safety and Health Administration (OSHA) of the Department of Labor has the primary responsibility for administering the Act. OSHA issues occupational safety and health standards, and as Compliance Safety and Health Officers conduct jobsite inspections to ensure compliance with the Act.

Inspection:

The Act requires that a representative of the employer and a representative authorized by the employees be given an opportunity to accompany the OSHA inspector for the purpose of aiding the inspection.

Where there is no authorized employee representative, the OSHA Compliance Officer must consult with a reasonable number of employees concerning safety and health conditions in the workplace.

Complaint:

Employees or their representatives have the right to file a complaint with the nearest OSHA office requesting an inspection if they believe unsafe or unhealthful conditions exist in their workplace. OSHA will withhold on request, names of employees complaining.

The Act provides that employees may not be discharged or discriminated against in any way for filing safety and health complaints or otherwise exercising their rights under the Act.

An employee who believes he has been discriminated against may file a complaint with the nearest OSHA office within 30 days of the alleged discrimination.

Citation:

If upon inspection OSHA believes an employer has violated the Act, a citation alleging such violations will be issued to the employer. Each citation will specify a time period within which the alleged violation must be corrected.

The OSHA citation must be prominently displayed at or near the place of alleged violation for three days, or until it is corrected, whichever is later, to warn employees of dangers that may exist there.

Proposed Penalty:

The Act provides for mandatory penalties against employers of up to \$1,000 for each serious violation and for optional penalties of up to \$1,000 for each nonserious violation. Penalties of up to \$1,000 per day may be proposed for failure to correct violations within the proposed time period. Also, any employer who willfully or repeatedly violates the Act may be assessed penalties of up to \$10,000 for each such violation.

Criminal penalties are also provided for in the Act. Any willful violation resulting in death of an employee, upon conviction, is punishable by a fine of not more than \$10,000 or by imprisonment for not more than six months, or by both. Conviction of an employer after a first conviction doubles these maximum penalties.

Voluntary Activity:

While providing penalties for violations, the Act also encourages efforts by labor and management before an OSHA inspection, to reduce injuries and illnesses arising out of employment.

More Information:

Additional information and copies of the Act, specific OSHA safety and health standards, and other applicable regulations may be obtained from the nearest OSHA Regional Office in the following locations:

Atlanta, Georgia
Boston, Massachusetts
Chicago, Illinois
Dallas, Texas
Denver, Colorado
Kansas City, Missouri
New York, New York
Philadelphia, Pennsylvania
San Francisco, California
Seattle, Washington

Telephone numbers for these offices, and additional Area Office locations, are listed in the telephone directory under the United States Department of Labor in the United States Government listing.



Washington, D.C.
1974
OSHA 2203

Peter J. Brennan
Peter J. Brennan
Secretary of Labor

U. S. Department of Labor
Occupational Safety and Health Administration

Employers must post one of the full size versions (10x16) of this type of OSHA poster or a state-approved poster where required.

CHECKLISTS

Since safe conditions depend on identifying possible hazards and immediate remedial action, periodic inspections are one of the most important aspects of a successful safety and health program.

Management will find a checklist, such as the one presented on the following pages, helpful in performing a self-inspection of the facility. Because businesses vary, it is best that each business develop a customized list from the information in this booklet and a walk-through inspection.

Using this checklist, the manager, supervisor, or employee representative makes periodic inspections (preferably at least once each month) to identify problem areas so that corrective action may be taken.

Reference made in the "Checklist" subtitles refers to appropriate sections of "General Industry Standards," Title 29, Code of Federal Regulations — Part 1910.



CHECKLISTS (cont.)

WALKING AND WORKING SURFACES (29 CFR 1910.22-.27)

BUILDINGS AND YARDS

	Yes	No
Are all places of employment kept clean and orderly? _____	☐	☐
Are floors, aisles, and inside passageways kept clean and dry and all spills cleaned up immediately? _____	☐	☐
Are floor holes, such as drains, covered? _____	☐	☐
Are yards maintained so as to minimize tripping and falling hazards? _____	☐	☐

STORAGE LOFTS, SECOND FLOORS, ETC. (29 CFR 1910.22, .23)

Are signs showing floor-load capacity present? _____	☐	☐
Are platforms, storage lofts, balconies, etc. that are more than four feet above the floor protected with standard guardrails? _____	☐	☐
Are all platforms, lofts, and balconies (above where people or machinery could be exposed to falling objects) guarded with standard four-inch toeboards? _____	☐	☐

STAIRS (29 CFR 1910.24)

Are there standard stair rails or handrails on all stairways having four or more risers? _____	☐	☐
Are all stairways at least 22 inches wide? _____	☐	☐
Do stairs have at least a 7-foot overhead clearance? _____	☐	☐
Do stairs angle no more than 50° and no less than 30°? _____	☐	☐

CHECKLISTS (cont.)

Yes No

LADDERS (29 CFR 1910.25, .26, .27)

Have defective ladders (e.g., broken rungs, side rails, etc.) been tagged as "DANGEROUS, DO NOT USE" and removed from service for repair or destruction?

☐ ☐

Is the use of the top of an ordinary step ladder as a step prohibited? _____

☐ ☐

Do fixed ladders have at least 3½ feet of extension at the top of the landing? _____

☐ ☐

Is the distance between the centerline of rungs on a fixed ladder and the nearest permanent object in back of the ladder at least 7 inches or more?

☐ ☐

Do all fixed ladders have a preferred pitch of 75°-90°? _____

☐ ☐

EGRESS (29 CFR 1910.36-.37)

Are all exits marked with an exit sign and illuminated by a reliable source? _____

☐ ☐

Is the lettering at least 6 inches high with the principal letter strokes at least ¾ of an inch wide?

☐ ☐

Is the direction to exits, when not immediately apparent, marked with visible signs? _____

☐ ☐

Are doors or other passageways, that are neither exits nor access to an exit, and located where they may be mistaken for exits, appropriately marked "NOT AN EXIT," "TO BASEMENT," "STOREROOM," etc? _____

☐ ☐

Are exit doors side-hinged? _____

☐ ☐

Are all doors that must be passed through to reach an exit or way to an exit, always free to access with no possibility of a person's being locked inside?

☐ ☐

CHECKLISTS (cont.)

	Yes	No
Are all exit routes always kept free of obstructions? _____	☐	☐

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (29 CFR 1910.1000, .94)

Is management aware of the potential health hazards caused by the various operations in the facility?

☐ ☐

Is employee exposure kept within the acceptable levels? _____

☐ ☐

Are all containers, such as vats, storage tanks, etc. labeled as to their contents? _____

☐ ☐

If internal combustion engines are used, is carbon monoxide kept within acceptable levels?

☐ ☐

Is employee exposure to hazardous substances controlled by ventilation, use of respirators, limiting exposure time, or other means? _____

☐ ☐

Are employees required to wear personal protective equipment when handling solvents, and caustics to avoid eye or skin contact? _____

☐ ☐

OCCUPATIONAL NOISE EXPOSURE (29 CFR 1910.95)

If a noise problem is suspected, have noise levels been accurately measured? _____

☐ ☐

If a noise problem exists, have plans to reduce noise levels by engineering methods been formulated (e.g., enclosure, maintenance, different methods of processing)? _____

☐ ☐

If engineering controls cannot reduce the noise to safe levels:

1. have administrative controls, such as limiting worker-exposure in a given area, been started?

☐ ☐

CHECKLISTS (cont.)

	Yes	No
2. are affected employees given annual audiometric tests, if necessary? _____	☐	☐
3. do all employees in high-noise areas wear hearing protection? _____	☐	☐
4. are annual noise surveys made to re-evaluate the problem? _____	☐	☐

HAZARDOUS MATERIALS FLAMMABLE AND COMBUSTIBLE LIQUIDS (29 CFR 1910.106)

Are all connections on drums and piped systems of flammable and combustible liquids vapor and liquid tight? _____ ☐ ☐

Are flammable liquids kept in closed containers when not in use (e.g., parts cleaning tanks, pans)? _____ ☐ ☐

Are all spills of flammable or combustible liquids cleaned up promptly? _____ ☐ ☐

Is combustible waste material (such as oily rags) stored in covered metal receptacles and disposed of daily? _____ ☐ ☐

Are bulk drums of flammable liquids grounded and bonded to containers during dispensing? _____ ☐ ☐

Are gasoline and other flammable liquids stored in approved containers? _____ ☐ ☐

Do storage rooms for flammable and combustible liquids have explosion-proof lights? _____ ☐ ☐

Do storage rooms for flammable and combustible liquids have mechanical or gravity ventilation (at least six air changes per hour)? _____ ☐ ☐

Are storage cabinets for flammable liquids labeled "FLAMMABLE — KEEP FIRE AWAY"? _____ ☐ ☐

Are storage areas for flammables prominently posted as "NO SMOKING" areas? _____ ☐ ☐

CHECKLISTS (cont.)

	Yes	No
Is there never more than one day's supply of flammable liquids outside of approved storage cabinets or rooms? _____	☐	☐
In fueling areas for internal combustion engines: are smoking or open flames <i>not</i> allowed? _____	☐	☐
are engines of vehicles being fueled turned off? _____	☐	☐
is a fire extinguisher located within 75 feet? _____	☐	☐
Are gas tanks of vehicles for dismantling or storage drained upon arrival at the yard? _____	☐	☐
After draining and plugging all tank openings, are tanks removed only with wrenches or boltcutters?	☐	☐

PAINT SPRAY OPERATIONS (29 CFR 1910.107)

GENERAL

Are portable lamps removed during spray operations? _____	☐	☐
Do solvents used for cleaning have high flash points (not less than 100°F)? _____	☐	☐
Are fire control sprinkler heads kept clean? _____	☐	☐
Are "NO SMOKING" signs posted in the spray area, paint room, paint booth, and paint storage area? _____	☐	☐
Are the electric motors for exhaust fans placed outside booths or ducts? _____	☐	☐
Are belts and pulleys inside the booth fully enclosed? _____	☐	☐
Do ducts have access doors to allow cleaning? _____	☐	☐
At low temperatures (below 55°) is make-up air heated to at least 65°? _____	☐	☐

CHECKLISTS (cont.)

	Yes	No
Is the make-up air heater located outside the spray booth? _____	☐	☐
Do all drying spaces have adequate ventilation? _____	☐	☐
Is the spray area at least 20 feet from flame, sparks, electric motors, or other ignition sources? _____	☐	☐
Is the spray area free of hot surfaces? _____	☐	☐
Is the spray area kept clean of combustible residue? _____	☐	☐
Are spray booths constructed of metal, masonry, or other substantial noncombustible material? _____	☐	☐
Are spray booth floors and baffles noncombustible and easily cleaned? _____	☐	☐
Do spray booths have explosion-proof lights or are they lighted through sealed clear panels? _____	☐	☐
Is mechanical ventilation on during spray operations? _____	☐	☐
Is infra-red drying apparatus kept out of the spray area during spraying operations? _____	☐	☐
Is the spray area completely ventilated before using the drying apparatus? _____	☐	☐
Is the electric drying apparatus properly grounded? Is personal protective equipment provided, used, and maintained wherever it is necessary? _____	☐	☐

PERSONAL PROTECTIVE EQUIPMENT (29 CFR 1910.132-.137)

Is personal protective equipment provided, used, and maintained wherever it is necessary? _____	☐	☐
Is employee-owned personal protective equipment, such as gloves, protective shoes, etc., also adequate and properly maintained? _____	☐	☐

CHECKLISTS (cont.)

	Yes	No
Is eye and face protection required to prevent injury from molten metal, flying debris, sparks, or chips during grinding, welding, cutting, etc.? _____	☐	☐
Are leggings, aprons, gloves, etc. worn as protection from flames, sparks, and flying chips? _____	☐	☐
Are ear plugs or muffs provided and worn during noisy conditions? _____	☐	☐
Are respirators provided and used when necessary? _____	☐	☐
Are there written standard operating procedures for the selection and use of respirators? _____	☐	☐
Is the user instructed and trained in the proper use of respirators? _____	☐	☐
Where practicable, are respirators individually assigned for use by employees? _____	☐	☐
Are respirators inspected, and disinfected after use? _____	☐	☐
Are respirators stored in a convenient, clean, and sanitary location? _____	☐	☐
Is foot protection provided and worn to prevent injuries from punctures and falling objects? _____	☐	☐
Are gloves provided and worn where necessary to help avoid cuts? _____	☐	☐
Are hard hats required where falling objects could be a hazard? _____	☐	☐

GENERAL ENVIRONMENTAL CONTROLS SANITATION (29 CFR 1910.141)

Are restrooms and washrooms kept in clean and sanitary condition? _____	☐	☐
Are covered receptacles for waste food kept in clean and sanitary condition? _____	☐	☐

CHECKLISTS (cont.)

	Yes	No
Are all outlets for water that is not suitable for drinking, clearly posted as "UNSAFE FOR DRINKING, WASHING, OR COOKING"? _____	☐	☐
Are employees prohibited from eating in areas where toxic materials are present? _____	☐	☐
Has pest control been exercised? _____	☐	☐
If employees are permitted to eat on the premises, are they provided with a suitable space for that purpose? _____	☐	☐

MEDICAL AND FIRST AID (29 CFR 1910.151)

Are adequate first aid supplies approved by a consulting physician, readily available, inspected, and replenished? _____	☐	☐
Is at least one employee on each shift currently qualified to render first aid in the absence of a nearby clinic or hospital? (Some states require first aid trained persons regardless of nearby clinics or hospitals.) _____	☐	☐
Are medical personnel readily available for advice and consultation on matters of employee health? _____	☐	☐
Are emergency phone numbers posted? _____	☐	☐
Where employees may be exposed to injurious corrosive materials (for example, the handling of battery acid), are they provided with quick-drenching and flushing facilities for immediate emergency use? _____	☐	☐

FIRE PROTECTION (29 CFR 1910.157)

Are the extinguishers selected for the types of combustibles and flammables in the areas where they are to be used? _____	☐	☐
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CHECKLISTS (cont.)

	Yes	No
Class A Ordinary combustible material fires.		
Class B Flammable-liquid or grease fires.		
Class C Energized electrical equipment fires.		
Are extinguishers fully charged and kept in designated places? _____	☐	☐
Are extinguishers located along normal paths of travel? _____	☐	☐
Are extinguisher locations free from obstruction or blockage? _____	☐	☐
Are extinguishers not mounted too high? The top must not be higher than 5 feet above floor if the extinguisher weighs 40 lbs. or less. If greater than 40 pounds, the top must not be higher than 3½ feet above floor. _____	☐	☐
Have all extinguishers been serviced, maintained, and tagged at intervals not exceeding one year? _____	☐	☐
Are all extinguishers checked (by management or designated employee) monthly to see if they are in place, if they have been discharged, etc.? _____	☐	☐

COMPRESSED AIR (29 CFR 1910.169)

Are pulleys and belts on compressors and motors completely guarded? _____	☐	☐
Are flexible cords or plugs on electric motors periodically checked and replaced if deteriorated? _____	☐	☐
Do the relief valves operate properly? _____	☐	☐
Are air tanks drained regularly? _____	☐	☐
Are the pressure-relief device and gauge in good operating condition? _____	☐	☐

CHECKLISTS (cont.)

MATERIALS HANDLING AND STORAGE (29 CFR 1910.176,-.180)

	Yes	No
Is there safe clearance for equipment through aisles and doors? _____	☐	☐
Is stored material stable and secure? _____	☐	☐
Are storage areas free from tripping hazards? _____	☐	☐
Are only trained operators allowed to operate powered industrial trucks? _____	☐	☐
Are appropriate overhead guards installed on powered lift trucks? _____	☐	☐
Is battery charging performed only in designated areas? _____	☐	☐
Are "NO SMOKING" signs posted near electric battery charging units? _____	☐	☐
Are all vehicles shut off prior to loading? _____	☐	☐
Are dock boards (bridge plates) used when loading or unloading from dock to truck or dock to rail car? _____	☐	☐
Is a means for anchoring the dock plates provided? _____	☐	☐
Is all storage secured against sliding or collapsing? _____	☐	☐
Have aisles been designated and kept clear to allow unhindered passage? _____	☐	☐
Are containers of combustibles or flammables, when stacked one upon the other, always separated by dunnage sufficient to provide stability? _____	☐	☐
Are racks and platforms loaded only within the limits of their capacity? _____	☐	☐
If motorized equipment, such as lift trucks, is used, are aisles permanently marked, to provide sufficient clearance for passage of the equipment? _____	☐	☐

CHECKLISTS (cont.)

	Yes	No
Are motorized vehicles and mechanized equipment inspected daily or prior to use? _____	☐	☐
Are wrecker booms, chain hoists, ropes, and slings adequate for the load? _____	☐	☐
Are the brakes set and the rear wheels chocked to prevent highway trucks from moving while being boarded by powered industrial trucks? _____	☐	☐

MACHINERY AND MACHINE GUARDING (29 CFR 1910.212-.219)

Are belts, pulleys, and rotating shafts guarded? _____	☐	☐
Are chains, sprockets, and gears properly guarded? _____	☐	☐
Are all in-going nip points properly guarded? _____	☐	☐
Are rotating shafts that are not smooth properly guarded? _____	☐	☐
Are all rotating parts recessed or covered with collars? _____	☐	☐
Are all pieces of equipment with an electric motor or any electrical connection effectively grounded? _____	☐	☐
Are alligator shears and notchers provided with guards at the point of operation to prevent the employee's hands from being inserted into the danger zone? _____	☐	☐
Are the pedals of foot-operated hydraulic shears guarded to prevent accidental operation? _____	☐	☐
Are sprockets and belt drives within reach of platforms and passageways or less than seven feet from the floor completely enclosed? _____	☐	☐
Are fans less than seven feet above floor guarded, with guards having openings ½ inch or less?	☐	☐

CHECKLISTS (cont.)

ABRASIVE WHEEL MACHINERY (Grinders) (29 CFR 1910.215)

Yes No

Is the work rest used and kept adjusted to within 1/8 inch of wheel? _____

☐ ☐

Is the adjustable tongue on the top side of the grinder used and kept adjusted to within 1/4 inch of the wheel? _____

☐ ☐

Do side guards cover the spindle, nut, and flange and 75% of the wheel diameter? _____

☐ ☐

Are bench and pedestal grinders permanently mounted? _____

☐ ☐

Are goggles or face shields always worn when grinding? _____

☐ ☐

HAND AND PORTABLE POWER TOOLS (29 CFR 1910.242, .244)

Are tools and equipment (both company and employee-owned) in good condition? _____

☐ ☐

Have mushroomed heads on chisels, punches, etc. been reconditioned or replaced if necessary? _____

☐ ☐

Have broken hammer handles been replaced? _____

☐ ☐

Have worn or bent wrenches been replaced? _____

☐ ☐

Have employees been instructed that the use of compressed air to blow debris from clothing or body is prohibited because the air can enter the body and cause serious harm? _____

☐ ☐

Have deteriorated air hoses been replaced? _____

☐ ☐

Have employees been made aware of the hazards caused by faulty or improperly used hand tools? _____

☐ ☐

CHECKLISTS (cont.)

Yes No

WELDING, CUTTING, AND BRAZING (29 CFR 1910.252)

Are fuel gas cylinders and oxygen cylinders in storage separated by 20 feet or a barrier 5 feet high having a ½-hour fire resistance rating? _____

☐ ☐

Are cylinders secured and stored where they cannot be knocked over? _____

☐ ☐

Are valve protective caps in place except when the cylinder is in use? _____

☐ ☐

Are compressed gas cylinders kept away from sources of heat, elevators, stairs, or gangways?

☐ ☐

Are only employees who are judged competent by the employer allowed to use oxygen or fuel gas equipment? _____

☐ ☐

Do all cylinders (except those with fixed hand wheels) have non-adjustable wrenches, keys, or handles in place on valve stems while they are in use? _____

☐ ☐

Is welding or cutting always conducted at a safe distance from flammable liquids? _____

☐ ☐

Are all compressed gas cylinders legibly marked for identifying the contents? _____

☐ ☐

Are the valves shut off when the cylinder is not in use? _____

☐ ☐

Are precautions taken to be sure that barrels, tanks, or other containers have been cleaned thoroughly to remove all flammable vapors or residues before cutting, welding, or other hot work is permitted on them? _____

☐ ☐

Is eye protection (goggles, helmets, hand shields) provided and worn as a protection against sparks or other debris? _____

☐ ☐

Is appropriate protective clothing (gloves, aprons, leggings, etc.) worn as a protection against sparks and other debris? _____

☐ ☐

CHECKLISTS (cont.)

	Yes	No
Are nearby workers protected from welding flash? _____	☐	☐
Are employee exposures to cutting and welding fumes kept within acceptable limits? _____	☐	☐
Outdoors — Is NIOSH-approved respiratory protective equipment supplied and used when cutting or welding on metals containing or coated with:		
a. lead? _____	☐	☐
b. cadmium? _____	☐	☐
Indoors — Is local exhaust ventilation (hoods or booths) used when performing torchwork on:		
a. lead? _____	☐	☐
b. zinc? _____	☐	☐
With respect to other metals (copper, iron, nickel, etc.) are mechanical ventilation or supplied air respirators provided when cutting:		
a. in a space of less than 10,000 cubic feet per worker? _____	☐	☐
b. in a room having a ceiling height less than 16 feet? _____	☐	☐
c. in confined spaces? _____	☐	☐
d. in any location where employees are exposed to toxic levels of contaminants? _____	☐	☐

NATIONAL ELECTRICAL CODE (29 CFR 1910.308, .309) ELECTRICAL WIRING

Have exposed wires, frayed cords, and deteriorated insulation been repaired or replaced? _____	☐	☐
Are junction boxes, outlets, switches, and fittings covered? _____	☐	☐
Is all metal fixed electrical equipment grounded? _____	☐	☐

CHECKLISTS (cont.)

	Yes	No
Are flexible cords and cables fastened so that there is no direct pull on joints or terminal screws? _____	☐	☐
Are flexible cords and cables never substituted for fixed wiring? _____	☐	☐
Do flexible cords and cables not run through holes in wall or ceiling or through doorways or windows? _____	☐	☐
Does all equipment connected by cord and plug have grounded connections? _____	☐	☐
Are electrical appliances such as vacuums, polishers, vending machines grounded? _____	☐	☐
Are all portable electrical hand tools grounded? (Double-insulated tools are acceptable without grounding.) _____	☐	☐
Are breaker switches identified as to their use? _____	☐	☐

RECORDKEEPING (29 CFR 1903.2-1904.8)

Is employee poster (OSHA or equivalent state poster) prominently displayed? _____	☐	☐
Was a summary of all occupational injuries and illnesses compiled at the conclusion of each calendar year and recorded on OSHA Form No. 102 posted during the month of February? _____	☐	☐
Have all OSHA records been retained for a period of five years, excluding the current year? _____	☐	☐
Have occupational injuries or illnesses, except minor injuries requiring only first aid, been recorded on OSHA Form Nos. 100 and 101, or equivalent? _____	☐	☐
Are OSHA Form Nos. 100 and 101 kept current to within six days? _____	☐	☐

**NIOSH
INFORMATION SOURCES**

**AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
1430 Broadway, New York, N.Y. 10018**

- | | |
|---------------------------------|---|
| ☐ A12.1 | Floor and Wall Openings |
| ☐ A14.1 | Portable Wood Ladders |
| ☐ A58.1 | Minimum Design Load |
| ☐ A64.1 | Fixed Stairs |
| ☐ B15.1 | Mechanical Power Transmission |
| ☐ C1 | National Electric Code |
| ☐ Z4.1 | Sanitation In Places of Employment |
| ☐ Z268.1 | Safety Requirements For Design, Use and
Maintenance of Metal Scrap Processing
Equipment |

**NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
470 Atlantic Ave.
Boston, Mass. 02210**

- | | |
|--|--|
| ☐ NFPA-10-1970 | Installation of Portable Fire
Extinguishers |
| ☐ NFPA-101-1970 | Life Safety Code |
| ☐ NFPA-70-1971 | National Electric Code |

**NATIONAL SAFETY COUNCIL
425 North Michigan Avenue
Chicago, Illinois 60611**

HEALTH AND SAFETY CONSULTANTS

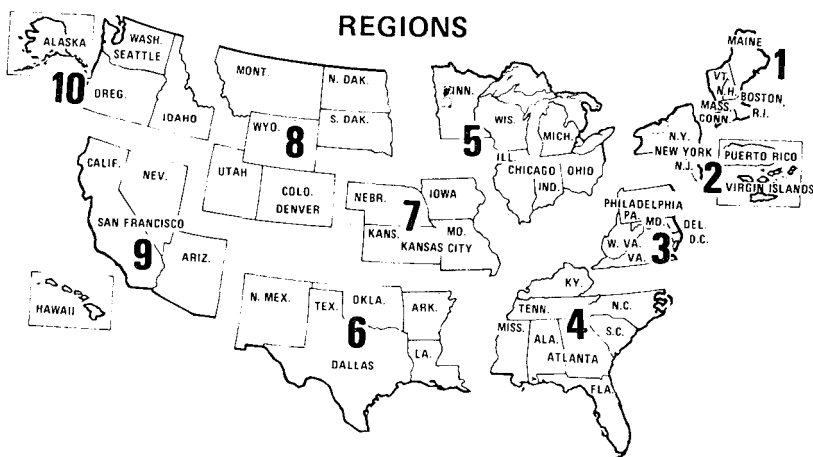
For a list of health and safety consultants write to:
American Industrial Hygiene Assoc.
c/o William E. McCormick, Managing Director
66 S. Miller Road
Akron, Ohio 44313

NIOSH AND OSHA REGIONAL DIRECTORS

Trade associations and insurance companies can also provide useful information. The Small Business Administration will provide information concerning procedures for securing economic assistance on compliance with the OSHA Standards (if needed).

NIOSH AND OSHA REGIONAL OFFICES

The following pages list NIOSH and OSHA regional offices which can provide information on the OCCUPATIONAL SAFETY AND HEALTH ACT including questions on standards interpretations, voluntary compliance information, copies of the *OSHA Standards*, *OSHA Act*, *Employee Rights Posting Notice*, and publications.



NIOSH REGIONAL OFFICES

DHEW, Region I
Government Center (JFK Fed. Bldg.)
Boston, Massachusetts 02203
Tel.: 617/223-6668/9

DHEW, Region II — Federal Building
26 Federal Plaza
New York, New York 10007
Tel.: 212/264-2485/8

DHEW, Region III
3525 Market Street, P.O. Box 13716
Philadelphia, Pennsylvania 19101
Tel.: 215/596-6716

DHEW, Region IV
50 Seventh Street, N.E.
Atlanta, Georgia 30323
Tel.: 404/526-5474

DHEW, Region V
300 South Wacker Drive
Chicago, Illinois 60607
Tel.: 312/886-3651

DHEW, Region VI
1200 Main Tower Building, Room 1700-A
Dallas, Texas 75245
Tel.: 214/655-3081

DHEW, Region VII
601 East 12th Street
Kansas City, Missouri 64106
Tel.: 816-374-5332

DHEW, Region VIII
19th & Stout Streets
9017 Federal Building
Denver, Colorado 80202
Tel.: 303/837-3979

DHEW, Region IX
50 Fulton Street (223 FOB)
San Francisco, California 94102
Tel.: 415/556-3781

DHEW, Region X
1321 Second Avenue (Arcade Bldg.)
Seattle, Washington 98101
Tel.: 206/442-0530

OSHA REGIONAL OFFICES

Region I

U.S. Department of Labor
Occupational Safety and Health Administration
JFK Building, Room 1804
Boston, Massachusetts 02203 Telephone: 617/223-6712/3

Region II

U.S. Department of Labor
Occupational Safety and Health Administration
1515 Broadway (1 Astor Plaza), Room 3445
New York, New York 10036 Telephone: 212/971-5941/2

Region III

U.S. Department of Labor
Occupational Safety and Health Administration
15220 Gateway Center, 3535 Market Street
Philadelphia, Pennsylvania 19104 Telephone: 215/596-1201

Region IV

U.S. Department of Labor
Occupational Safety and Health Administration
1375 Peachtree Street, N.E., Suite 587
Atlanta, Georgia 30309 Telephone: 404/526-3573/4 or 2281/2

Region V

U.S. Department of Labor
Occupational Safety and Health Administration
230 S. Dearborn, 32nd Floor
Chicago, Illinois 60604 Telephone: 312/353-4716/7

Region VI

U.S. Department of Labor
Occupational Safety and Health Administration
555 Griffin Square Building, Room 602
Dallas, Texas 75202 Telephone: 214/749-2477/8/9 or 2567

Region VII

U.S. Department of Labor
Occupational Safety and Health Administration
Federal Building, Room 3000, 911 Walnut Street
Kansas City, Missouri 64106 Telephone: 816/374-5861

Region VIII

U.S. Department of Labor
Occupational Safety and Health Administration
Federal Building, Room 15010, 1961 Stout Street
Denver, Colorado 80202 Telephone: 303/837-3883

Region IX

U.S. Department of Labor
Occupational Safety and Health Administration
9470 Federal Building, 450 Golden Gate Avenue
Post Office Box 36017
San Francisco, California 94102 Telephone: 415/556-0584

Region X

U.S. Department of Labor
Occupational Safety and Health Administration
6048 Federal Office Building, 909 First Avenue
Seattle, Washington 98174 Telephone: 206/442-5930

