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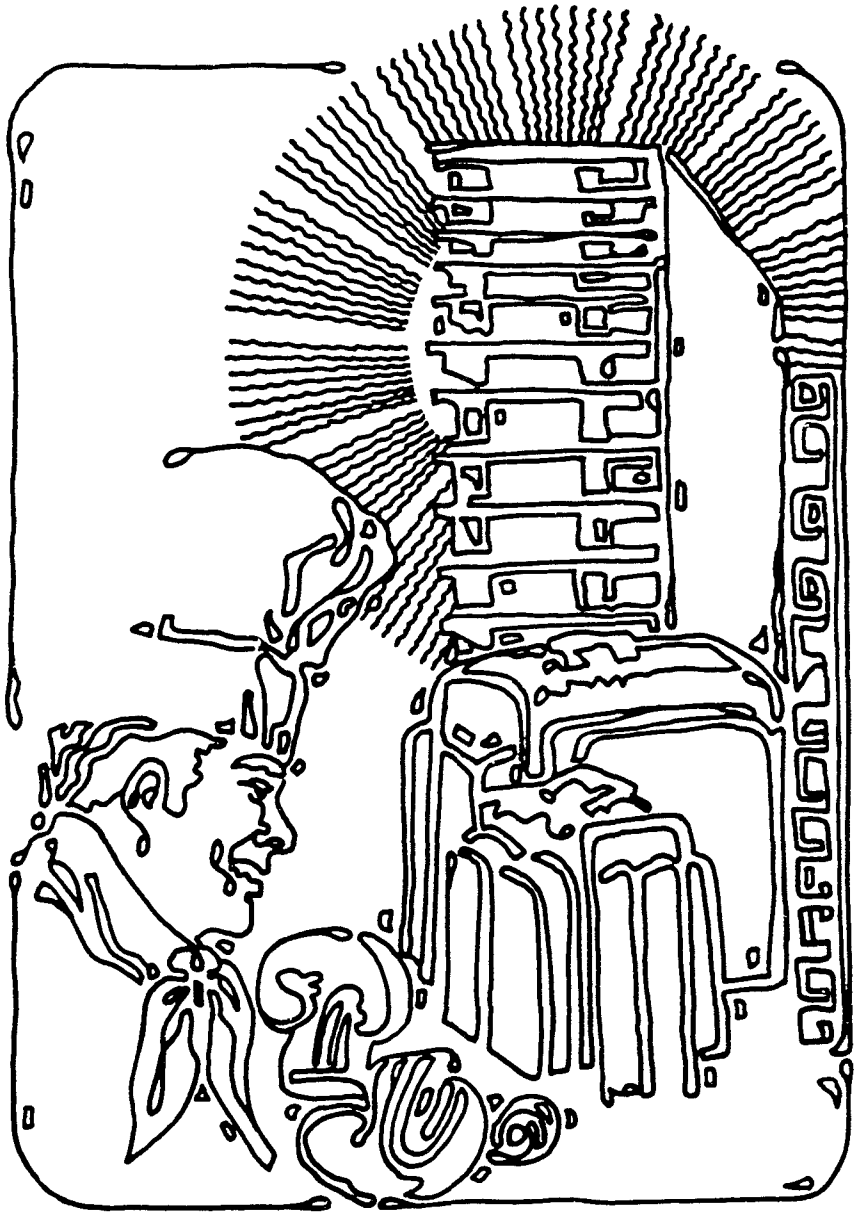
HEALTH AND SAFETY GUIDE FOR HOTELS AND MOTELS



U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health

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HEALTH AND SAFETY GUIDES

- ☐ Bulk Petroleum Plants, Pub. No. 75-112
- ☐ Grocery Stores, Pub. No. 75-134
- ☐ Retail Bakeries, Pub. No. 75-135
- ☐ Auto Repair and Body Shops, Pub. No. 75-136
- ☐ Service Stations, Pub. No. 75-139
- ☐ Sporting Goods Stores, Pub. No. 75-141
- ☐ Grain Mills, Pub. No. 75-144
- ☐ Electroplating Shops, Pub. No. 75-145
- ☐ Retail Lumber and Building Materials, Pub. No. 75-146
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Health and safety guidelines are given for hotel and motel workers. Information is given on frequently violated regulations and recordkeeping requirements. Checklists, information sources, a list of NIOSH and OSHA Regional Offices, and charts on safe lifting anf fire extinguishers are included.

17. Key Words and Document Analysis. 17a. Descriptors

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Workers
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Requirements
Regulations

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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 enforcement of the 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 includes a "Guidelines" section and a section on "Frequently Violated Regulations"; it is being distributed throughout the industry.

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 Title 29 Code of Federal Regulations—Part 1910".

Words such as "must", "shall", "required", and "necessary" appearing in the text, indicate requirements under the Federal Regulations. Procedures indicated by "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, 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.

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HEALTH AND SAFETY GUIDELINES

GENERAL PHILOSOPHY REGARDING HEALTH AND SAFETY

Through the use of a health and safety program and actively supported employee training, existing unsafe acts or conditions should become apparent. For many of these there may not be specific standards. Nevertheless, it is important to find a solution to these recognized problems.

During the analysis of the workplace for health and safety problems, it may also become apparent that "the letter of the law" is not being met. This may be particularly noticeable where dimensions are given for ladders, stairs, railings, etc. If it is apparent to all concerned that the "intent" of the law is being met, instead of making changes, a variance may be requested. Considerable discretion must be exercised in this area and the decision not to make changes should be made with the concurrence of OSHA.

When new buildings are being constructed, renovations are being made, or new equipment is obtained, the standards must be followed.

Even where a citation is issued, it is desirable that the employer have demonstrated a willingness to comply with the intent of the law by operating an effective, on-going safety and health program, by correcting existing hazards in the workplace, and by maintaining records of purchases, installations, and other compliance-promoting activities. Therefore, after an OSHA compliance visit and a possible citation, the manager can substantiate intent to provide a safe and healthy workplace by demonstrating records which document the purpose, and may be given the benefit of having shown "good faith" when penalties are being determined.

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HEALTH AND SAFETY GUIDELINES (cont.)

HEALTH AND SAFETY PROGRAM

Hazardous conditions or practices not covered in the 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".

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

Hazards may be identified by investigating accidents, reviewing injury and illness records, soliciting employee input (interviews, suggestions, and complaints), performing self-inspections, using material in this Guide and other information sources. Typical examples 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 can be customized to fit the needs of the program.

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

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

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HEALTH AND SAFETY GUIDELINES (cont.)

The injury and illness summary records of one large hotel chain for a one year period showed the following:

TYPE OF INJURY	PERCENT OF TOTAL INJURIES	AVERAGE COST
Falls on level surfaces	16	$ 750
Cuts on sharp objects (knives, broken glass, etc.)	11	100
Lifting	11	600
Struck by doors, carts, etc.	10	600
Pushing objects (carts, beds, furniture, etc.)	7	1,350
Caught in-under-between	6	200
Struck against	6	150
Foreign particles in eyes (soaps, cleaners, dust, etc.)	5	300
Hand tools	5	90
Burns (hot objects spilled hot water, coffee, etc.)	5	400
Falls from elevated surfaces (ladders, etc.)	4	600
Dermatitis (from soaps, cleaners, etc.)	3	140
Machine in operation	2	1,000
Inhalation, ingestion, skin absorption of toxic chemicals	2	800
Bending, stooping	2	1,250
Miscellaneous	6	------

Average cost per injury or illness was $650.

The cost per injury reflects only the compensated costs to the individual. If all the hidden costs such as cost of replacement personnel; time spent by other employees to aid the victim, to observe what happened, to discuss the incident; and damage to the facilities or equipment were added, the total cost per injury would be considerably higher.

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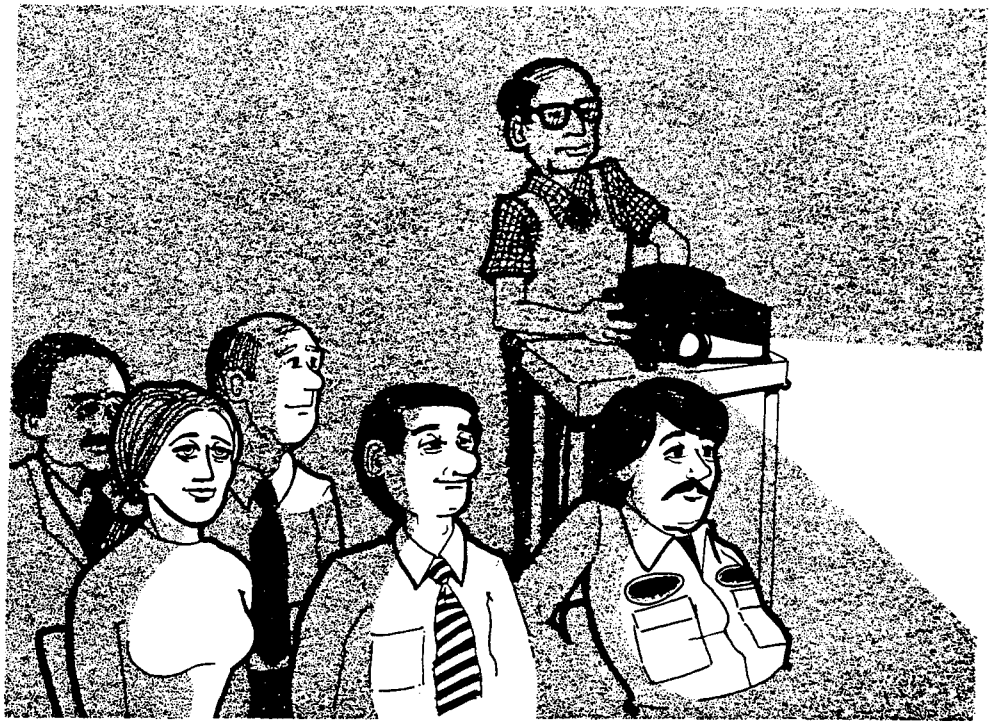
HEALTH AND SAFETY GUIDELINES (cont.)

Management may want to assign responsibilities in the areas of both program development and implementation. Regular meetings or informal discussions can be held to discuss safety promotions, hazards, injury and illness records, etc. To ensure the success and progress of the program, management leadership is necessary. The person assigned responsibility, for instance the foreman, must be delegated the authority and have management support to carry out the part of the program assigned. Likewise, everyone in the establishment should be aware of the program activities through a systematic interchange of information. Employees cannot take an interest in the program if they are unaware of what is occuring. Conversely, well informed employees will likely show interest and a desire to participate.



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HEALTH AND SAFETY GUIDELINES (cont.)

REDUCING UNSAFE ACTS AND PRACTICES

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 worker 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, if needed.
3. Develop and maintain check points to be observed as a part of the standard and emergency procedures during each shift.
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 on each shift.
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. An individual 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.

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HEALTH AND SAFETY GUIDELINES (cont.

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.

Personnel cannot always be relied upon to act safely enough around machinery in motion to avoid accidents. From time to time, people 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.

EMERGENCY PLANS

Emergency plans to cope with natural disasters (e.g., tornado conditions, earthquakes, and hurricanes), gas leaks, fires, bomb threats, public disturbances, and other emergency situations are desirable. Protection of employees and guests is essential. Good preparation and training can be valuable in averting panic and enhancing rapid and safe evacuation.

Emergency operation plans should be written. This forces clear and thorough planning and integrates activities so that employees aren't working at cross purposes during an emergency.

The written plan should delegate specific responsibilities so that everyone knows exactly what is expected. The written plan also gives you a permanent record for periodic reference. Above all, you should test the plan **before** it is needed. It is too late when the disaster strikes.

These are some items you may want to include on your disaster program checklist:

- A written company policy statement.
- Types of disaster expected.
- Plant layout.
- Relationships with disaster and welfare agencies.
- Emergency organization chart.
- Description of plant warning system.
- Emergency shutdown procedures.

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HEALTH AND SAFETY GUIDELINES (cont.)

- Evacuation routes including directional signs.
- Shelters for employees.
- Participation in mutual aid associations.
- Alternate company headquarters.
- Utilities repairs.

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL

In the occupational environment, persons 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, and so forth.

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 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 may contain safety 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 doing such an analysis, 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 sometimes poisonous gases, such as chlorine, are formed.

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HEALTH AND SAFETY GUIDELINES (cont.)

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 protective creams or lotions, proper personal protective clothing and other protective equipment, and good personal hygiene practices can often prevent skin problems.

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. Administrative controls—limiting the total amount of time an individual is exposed to a health hazard and rotating two or more workers each day.
5. Training and education of employees—employees should be told what hazards they are exposed to and the ways to reduce or limit exposure (see "Employee Training").
6. Personal hygiene—personal hygiene cannot be over-emphasized. Persons should wash their hands before eating. If chemicals such as 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.
7. Personal protective equipment—such items as respirators, hearing protection devices, protective clothing, and protective equipment (see "Personal Protective Equipment").
8. Ventilation—includes either local exhaust ventilation, by which contamination is removed at the point of generation, or general mechanical ventilation (see "Occupational Health and Environmental Control").

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HEALTH AND SAFETY GUIDELINES (cont.)

AUTOMATIC SPRINKLER SYSTEMS

When automatic sprinkler systems are provided, they must meet design requirements of the National Fire Protection Association's Standard for the Installation of Sprinkler Systems NFPA No. 13-1969 as well as OSHA requirements.

1. Every automatic sprinkler system must have at least one automatic water supply of adequate pressure, capacity, and reliability.

2. One or more fire department connections through which the fire department can pump water is required. No shut-off valve is allowed in these connections.

3. The employer is responsible for the condition of the sprinkler system and must keep it in good operating order. At least annual functional tests are required.

4. The clearance between sprinkler deflectors and the top of combustible storage must be at least 36 inches unless the material is in solid piles less than 15 feet high or in piles less than 12 feet high with horizontal channels, in which case a minimum clearance of 18 inches is allowed. Commodities containing only small amounts of combustible material may be stored up to 18 inches from the sprinkler deflectors.

5. Alarm systems, audible to all employees, must be provided on all automatic sprinkler installations.

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HEALTH AND SAFETY GUIDELINES (cont.)

GOOD HOUSEKEEPING HELPS PREVENT FIRES

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-resistive 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 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 awareness of these conditions through a safety program can reduce these hazards.

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HEALTH AND SAFETY GUIDELINES (cont.)

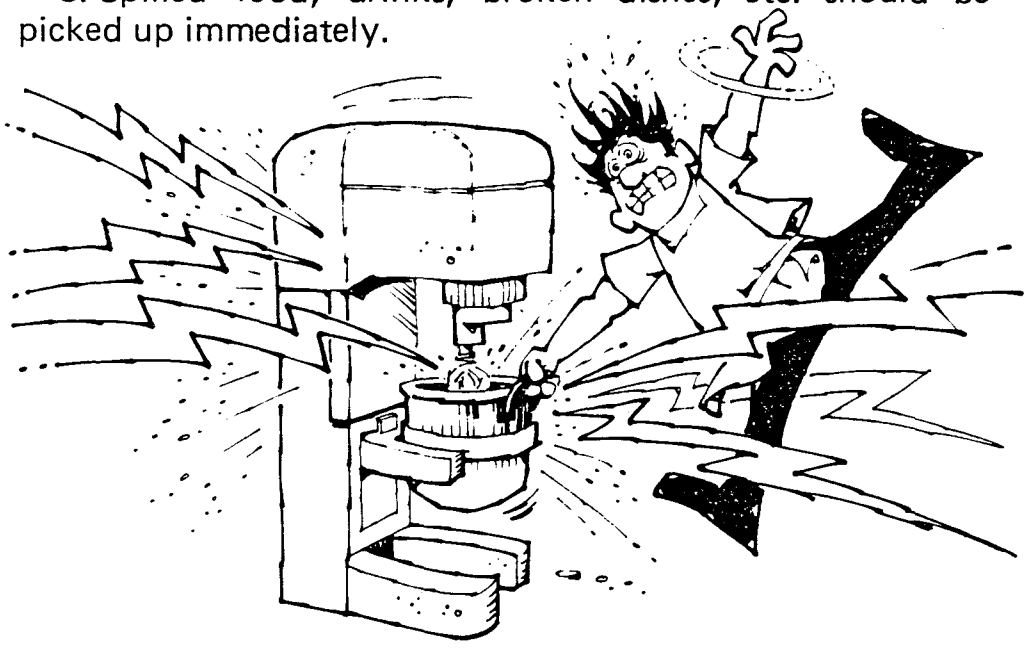
HOTELS AND MOTELS—SPECIFIC AREAS

This section lists some of the common problems found in specific areas. They serve as an additional guide to the following sections of this book and may be repetitious.

Hotels and motels vary in size, number of employees, and type of services offered. This guide is written to cover the entire industry, therefore, some operations may be listed that do not apply to your facility.

KITCHENS

1. The floor must not be slippery. In wet and greasy areas (e.g., near dishwashers, stoves, ice machines), the floor surface should be nonskid or be covered with washable mats.
2. Broken mats should be repaired or replaced.
3. Spilled food, drinks, broken dishes, etc. should be picked up immediately.



4. Electrical equipment such as fans, refrigerators, and dishwashers must have grounded connections. Any electrical equipment used in wet locations, including small appliances, must also be grounded.
5. All exposed drive belts on dishwashers and other equipment must be guarded.
6. The exhaust hoods and ducts must be cleaned regularly.

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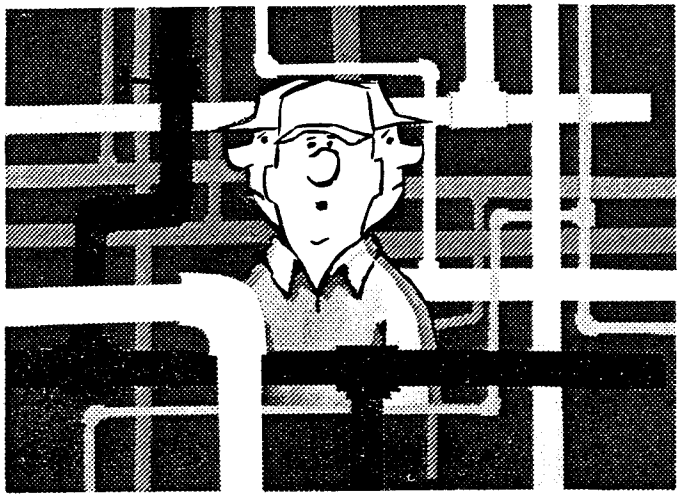
HEALTH AND SAFETY GUIDELINES (cont.)

7. Carts, boxes, trash cans, or other obstructions must not block exits, passageways, fire extinguishers, or electrical breaker panels.

8. Fire extinguishing equipment must be in working order, of the proper type, and properly located.

9. Where automatic fire control systems are used, the head or nozzle must be directed toward the potential fire area.

10. It is suggested that steam, gas, and water pipes be identified as such.



11. The regulations for bakery equipment (e.g., dough rollers, moulders, proof boxes) are very specific and should be referred to. A health and safety guide for Bakeries has been published (see inside front cover).

12. Carbon dioxide bottles should be secured or stored where they cannot be knocked over. All gauges on the tank should be in good working order.

13. All fans, including fans in coolers and refrigeration units, less than seven feet from the floor must be guarded with the openings no more than ½ inch.

14. Trash compactors should not be operable with the lid open. If they are operable with the lid open, other safety controls such as two-hand controls, electric eyes, or emergency shut-off bars should be installed.

15. Microwave ovens should be kept clean and periodically checked with a special instrument that measures microwaves to determine if leaks are occurring and also to see if the interlocks and automatic switches are working properly.

16. Meat saws must be properly guarded.

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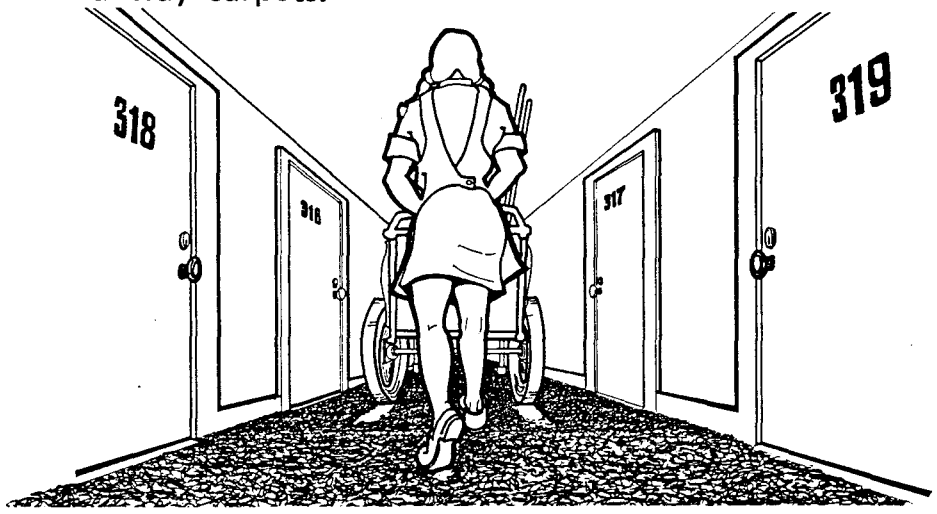
HEALTH AND SAFETY GUIDELINES (cont.)

HOUSEKEEPING

1. All appliances, such as vacuums and polishers, must have grounded connections.

2. Service carts should be equipped with large or wide wheels to make them easier to push, especially over deep piled hallway carpets.



3. Any objects, such as chairs and beds, that are heavy or awkward, should be lifted or moved by more than one person.

4. Employees should be told never to mix ammonia and bleach because they could be exposed to a dangerous gas.

5. When floors are being scrubbed, the area should be identified as being slippery by using signs or roping off the area.

LAUNDRIES

Along with general OSHA standards, there is a section addressed specifically to laundries—dealing mainly with laundry machine interlocks and guards. Dry cleaning operations are exempt from this section, but are subject to the requirements of the general OSHA standards.

The following standards are from the special section on Laundry Machinery and Operations.

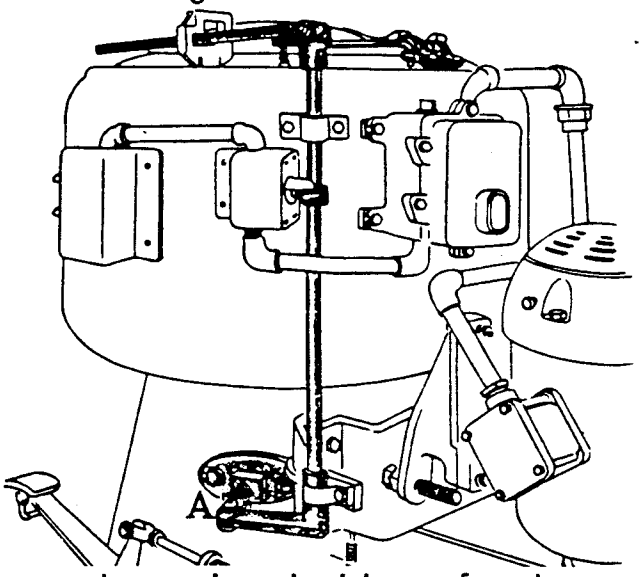
POINT OF OPERATION GUARDS

1. Power marking machines—must be equipped or guarded to prevent injury to fingers.

HEALTH AND SAFETY GUIDELINES (cont.)

2. Washing machines and drying tumblers must be equipped with interlocking devices that will prevent the inside cylinder from moving when the outer door on the case or shell is open, and will also prevent the door from being opened while the inside cylinder is in motion. These devices should not prevent the movement of the inner cylinder under the action of a hand-operated mechanism or under the operation of an "inching device."

3. Extractors must be equipped with an interlocking device that will prevent the cover from being opened while the basket is in motion, and will also prevent the power operation of the basket while the cover is not fully closed and secured. This device should not prevent the movement of the basket by hand to ensure an even loading.



Interlocking extractor cover guard. The cover is mechanically interlocked with the spindle so that the cover cannot be removed until the spindle is at rest.

4. Power wringers must be equipped with a safety bar or other guard across the entire front of the feed or first rolls, so arranged that the striking of the bar or guard by the hand will stop the machine.

5. Sewing machines must be equipped with a guard permanently attached to the machine, so that the operator's fingers cannot pass under the needle. It must be of such form that the needle can be conveniently threaded without removing the guard.

6. Steam pipes that are within seven feet of the floor or working platform, and with which the worker may come into contact, must be insulated or covered with a heat-resistive material or otherwise properly guarded.

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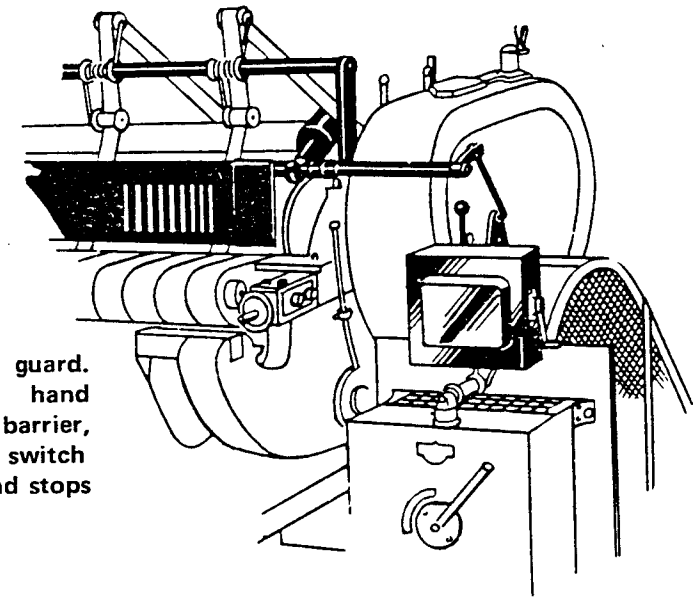
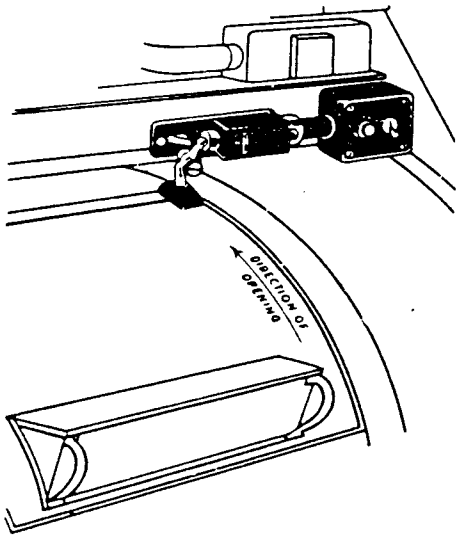
HEALTH AND SAFETY GUIDELINES (cont.)

7. Each power-driven machine must be provided with means for disconnecting it from the source of power. Starting and stopping devices for machines must be located so as to be operable from the front of the machine, and belts and pulleys properly guarded (see Machine Guarding Section).



Flatwork ironer guard. If operator's hand strikes hinged barrier, the contact switch opens circuit and stops machine.



Electrical interlock on washing machine. When door is opened the circuit to motor drive is broken, thus stopping the machine.

8. Each exhaust or ventilation fan within seven feet of the floor or working platform must be completely covered with wire mesh of not less than No. 16 gauge, and with openings no greater than one-half inch.

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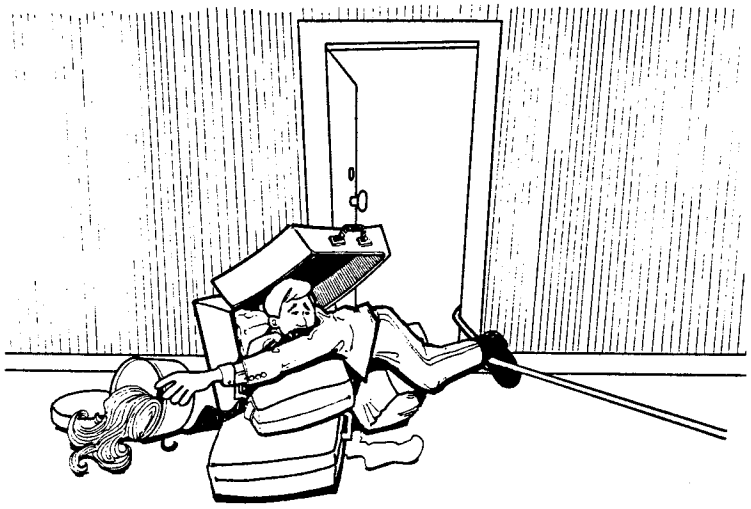
HEALTH AND SAFETY GUIDELINES (cont.)

MAINTENANCE SHOPS

1. All drive belts must be fully guarded, e.g., grinders, key machines, table saws, and air compressors.
2. Grinders—Tool rests, adjustable tongue-guards and spindle guards must be installed. Goggles must be used by the operator (see Machine Guarding Section).
3. Table saws and radial arm saws—Guards must be installed. The lower portion of the blade of radial arm saws must be guarded and the head must return to its starting position when released. Anti-kickback devices must be used when ripping (see Machine Guarding Section).
4. All electrical equipment must have grounded connections or be double insulated e.g., drills and saws.
5. All extension cords must be three-wire and of sufficient capacity to safely carry the current drawn by any device that is to be operated from the cord.
6. Broken ladders must be destroyed or tagged and repaired (see Walking and Working Surfaces Section).
7. Paints, solvents, and other flammable materials kept for more than 30 days must be stored in a cabinet or room that meets the required regulations (see Hazardous Material Section).

LOBBY AND OFFICE AREA

1. Cords (telephone, electric, etc.) should not be run across aisles or passageways. If they are, they must be covered.



HEALTH AND SAFETY GUIDELINES (cont.)

2. Electrical items should have grounded connections.
3. Extension cords must be of the ground type.
4. Multiple plug adaptors should not be used.

OUTSIDE

1. Icy areas should be salted or well sanded.
2. Swimming pools. If compressed chlorine gas is used for chlorination of the pool, a respirator designed for use with chlorine should be available.
3. Pump motors for swimming pool equipment must be grounded and all drive couplers and belts guarded.
4. Equipment, such as rotary lawnmowers, snow blowers, and parking lot vacuum units, must be shut off when making repairs, adjustments, or left unattended.

SERVICE STATIONS AND PARKING GARAGES

Service stations are an industry by themselves. Since only a small percentage of hotels and motels operate their own service stations, they will not be discussed in this book. A health and safety guide for service stations has been published (see inside front cover).

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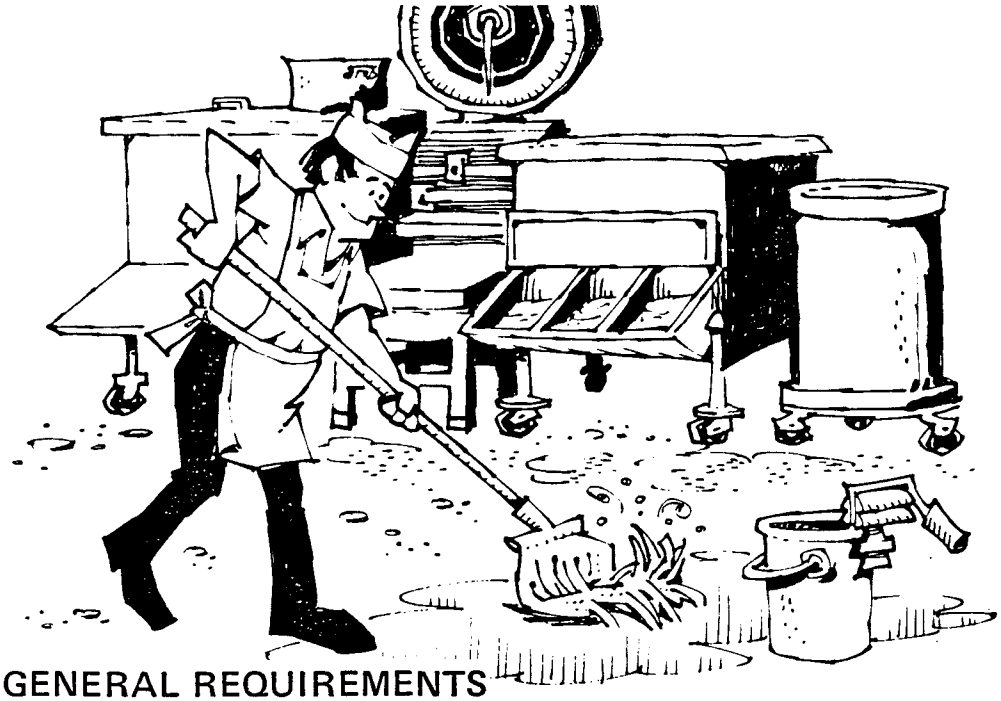
FREQUENTLY VIOLATED REGULATIONS

WALKING AND WORKING SURFACES



GENERAL REQUIREMENTS

1. The workplace must be maintained clean, orderly, sanitary, and as far as possible, in a dry condition. Spills should be cleaned up promptly.

2. Areas which are constantly wet should have nonslip surfaces where personnel 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 such as lift trucks is used, sufficient safe clearances must be provided for aisles at loading docks, through doorways, and wherever turns or passage must be made. Aisles must not be obstructed.

5. All permanent aisles must be easily recognizable. Usually aisles are identified by painting or taping lines on the floor.

6. 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, it is suggested that a competent engineer be consulted. These floor load capacities must be posted in a readily visible location (except for slab floors with no basements).

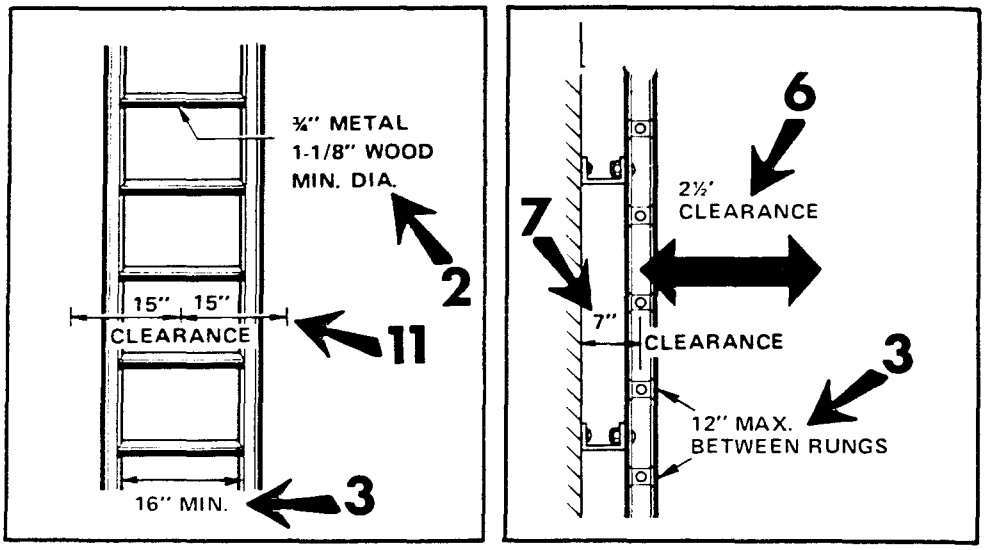
NIOSH

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 ¾ inches for metal ladders, or 1⅛ inches for wood ladders.



3. Not have rungs spaced more than 12 inches apart and must be at least 16 inches wide.
4. Be painted (if metal), or otherwise treated to resist deterioration when location demands.
5. Have a preferred pitch of 75°-90° for safe descent.
6. Have 2½ foot clearance for ladders with 90° pitch and 3 feet for 75° pitch on the climbing side of ladder (unless caged).
7. Have at least seven inch clearance in back of the ladder to provide for adequate toe space.
8. Be equipped with cages if they are longer than 20 feet.
9. Have landing platforms if they are more than 30 feet long. A platform every 30 feet for caged ladders and every 20 feet for unprotected ladders is required.
10. Have side rails extend 3½ feet above landings.
11. Have a clear width of 15 inches on each side of the center line of the ladder (unless with cages or wells).

NIOSH

FREQUENTLY VIOLATED REGULATIONS

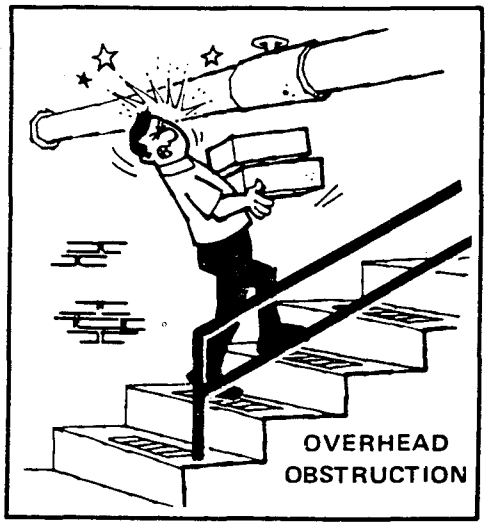
WALKING AND WORKING SURFACES (cont.)

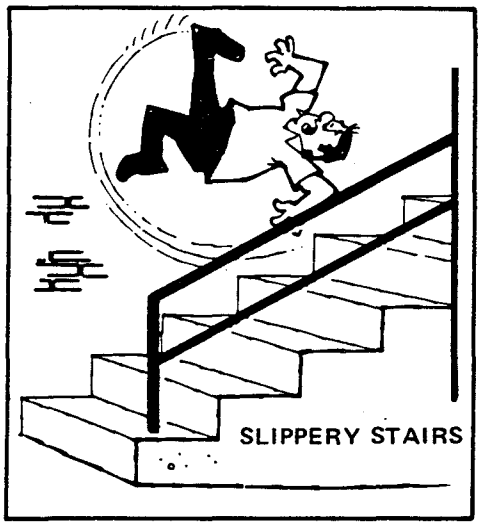
PORTABLE LADDERS

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. If wooden, should be stored where they will not be exposed to the elements and where there is good ventilation.
5. Metal ladders should not be used near energized electrical equipment.
6. Must be so placed 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.

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, at least 28 inches).

NIOSH

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 nine inches wide, the risers should be open.

8. If the flight of stairs has four or more risers:

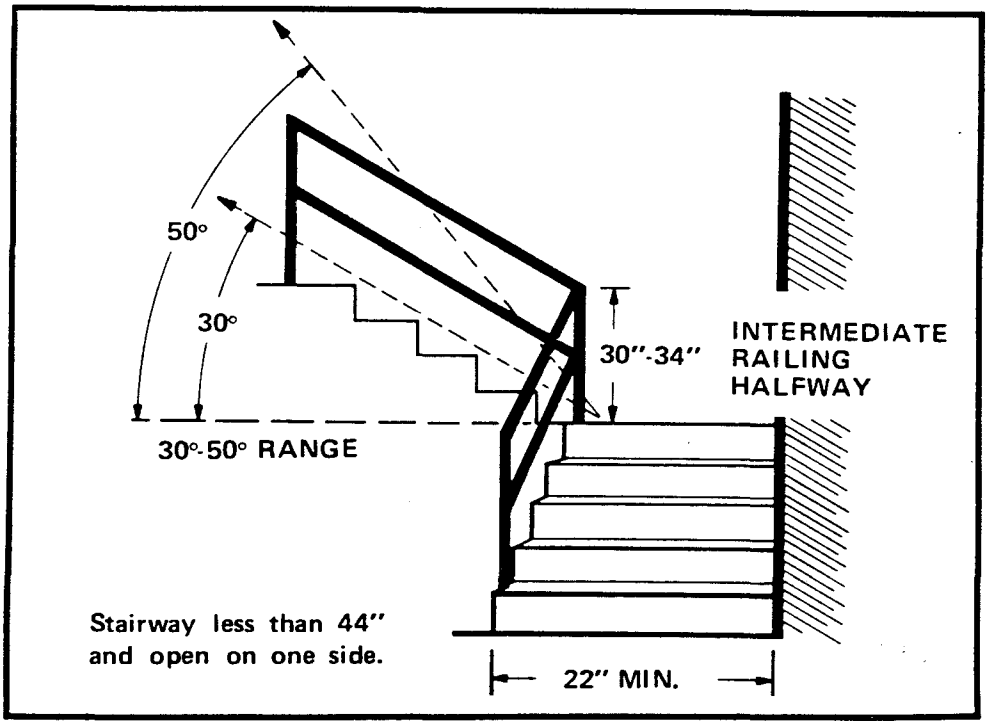
a. a stair railing on each open side is required.

b. a hand rail on each enclosed side is required if greater than 44 inches.

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.



NIOSH

FREQUENTLY VIOLATED REGULATIONS

WALKING AND WORKING SURFACES (cont.)

THE STANDARD RAILING AND TOEBOARD

A standard 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 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 six feet.

For pipe railings, rails and posts must be at least 1½-inch outside diameter pipe with posts spaced not more than eight feet.

For structural steel railings, posts and rails must be of 2 x 2 x ⅜-inch angles or other metal shapes of equivalent strength with posts spaced not more than 8 feet.

The standard toeboard must be approximately four 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 RAILING IS REQUIRED

1. Every open-sided floor or platform four 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 exposed 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 so constructed as to prevent a person from walking directly into the opening.
4. Every runway or catwalk must have railings on all open sides four feet or more above ground or floor level.

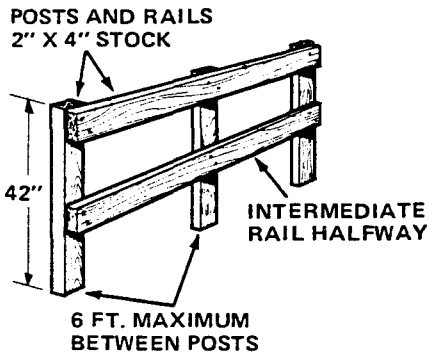
NIOSH

FREQUENTLY VIOLATED REGULATIONS

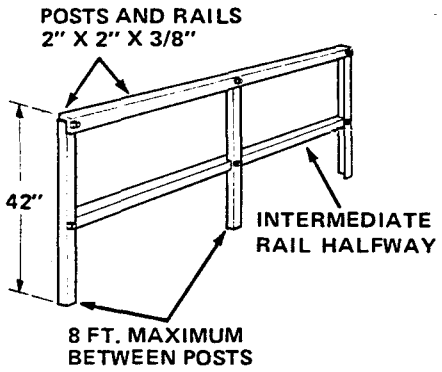
WALKING AND WORKING SURFACES (cont.)

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).

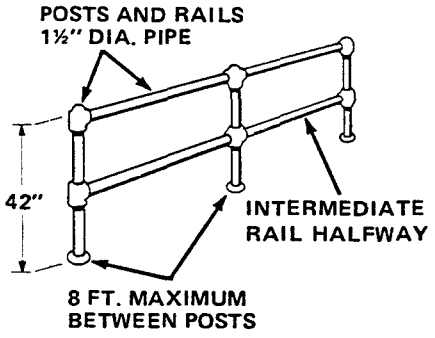
WOOD RAILS



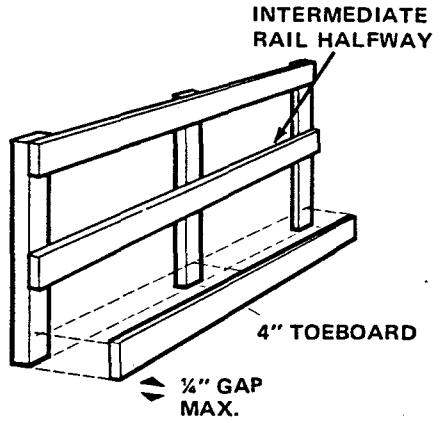
STRUCTURAL STEEL



PIPES



TOEBOARDS



NIOSH

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 six inches high with the strokes of the letters not less than ¾ inch wide.

2. Doors, passageways, or stairways which are neither exits nor ways to an exit, but may be mistaken for an exit, must be clearly marked "NOT AN EXIT" or must be marked by a sign indicating 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.

NIOSH

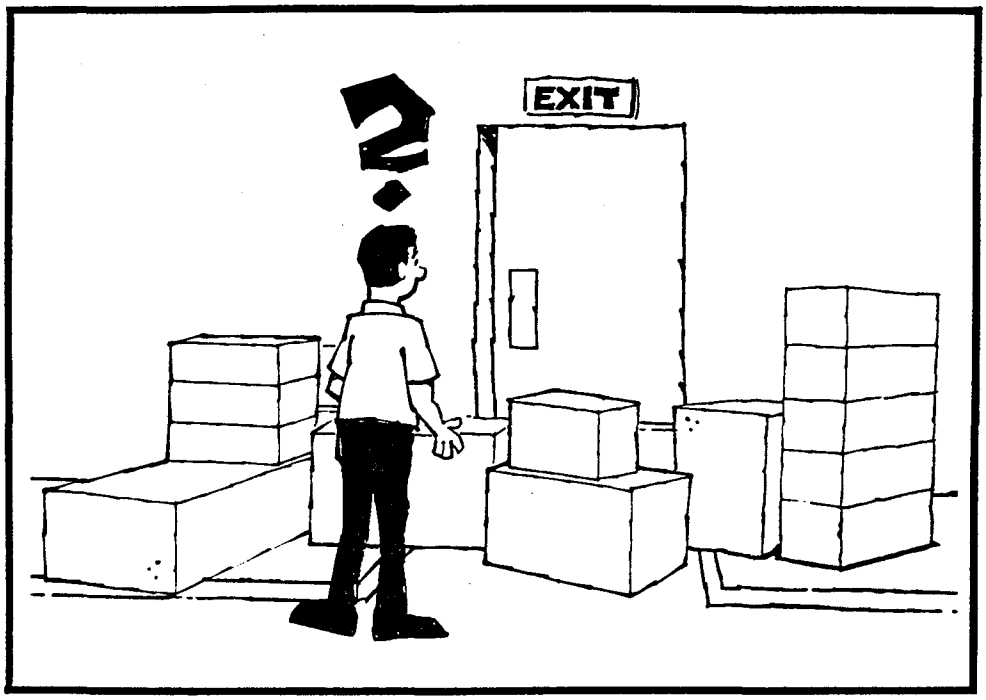
FREQUENTLY VIOLATED REGULATIONS

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 for 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. No lock or fastening may be used to prevent escape from inside the building.

10. 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 exit remote from each other.

NIOSH

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL

Persons working in hotels and motels may be exposed to a variety of gases, dusts, vapors, fumes, mists, noise, heat, and cold. The most common exposures are to the following:

1. **Ammonia.** Ammonia may be used as a cleaning agent or as a refrigeration gas. Direct skin contact with concentrated liquid ammonia can cause severe burns. When handling liquid ammonia, the individual should wear rubber gloves and goggles or a face shield.

2. **Carbon monoxide.** Carbon monoxide may be found where ovens, dryers, etc. are improperly vented. The doorman may also be exposed where cars are driven into or through the building for loading and unloading passengers or baggage.

3. **Chlorine.** Chlorine is used in swimming pools. It may be purchased in the liquid form, as a powder or granules, or as a compressed gas. Respiratory protection should be available where compressed chlorine gas is used or stored.

4. **Drain cleaners.** Drain cleaners cause skin burns and are harmful when splashed in the eyes. When using drain cleaners, rubber gloves and goggles and/or face shield should be worn.

5. **Microwaves.** Microwave ovens are becoming a standard item in restaurants. Microwaves are very hazardous to the eye. As the oven ages, hinges and catches become loose and microwaves may leak out. If the interlock system fails, the unit may not shut off when the door is open. Units should be checked periodically for leaks and proper working order by properly equipped and trained personnel. They should be cleaned regularly and whenever food is spilled.

6. **Paints and adhesives.** Paints and adhesives contain a wide variety of solvents and compounds and should be used with good ventilation. If this is not possible, respirators for use with organic vapors should be worn. Skin contact with epoxy paints and adhesives should be avoided, however, if there is skin contact, it should be washed immediately.

7. **Perchloroethylene.** Perchloroethylene is used in the dry cleaning machines found in some hotels. Avoid breathing the vapors and avoid skin contact. A respirator should be avail-

able for use when spills occur or when cleaning out the residue. Perchloroethylene is often found in spray cans and is used as spot removers or furniture cleaners.

8. **Soaps and detergents.** Contact with these products may cause dermatitis or skin rashes. This often occurs from using too strong a solution. Inhalation of the soap dust often occurs when putting material in the washing machines and may cause throat irritation. Disposable paper respirators can be worn during the operation.

9. **Caustic solutions.** Strong caustic solutions are often used for cleaning reusable filters of range, grill, and broiler exhaust hoods. Controlled procedures are necessary for such cleaning and protective clothing and equipment must be provided and used.

10. **Stoddard solvent.** Stoddard solvent may be used in the dry cleaning machines or as a parts cleaner in the maintenance shop.

11. **Welding fumes.** Welding fumes contain the fumes of the metals being welded together, the filler material, and the coating on the welding rods. When extensive welding is done by an individual, there could be an excessive fume exposure to these materials. Local exhaust ventilation should be provided when extensive welding is performed.

12. **Noise.** Excessive noise exposure can occur from bands or combos playing in the lounge or bar of hotels and motels. The bartenders, cocktail waitresses, and waiters working in these areas may receive an excessive noise exposure. This exposure can be reduced by turning down the volume and/or instituting administrative controls.

NIOSH

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (cont.)

OCCUPATIONAL NOISE EXPOSURE

Excessive noise is one of the most commonly violated standards and can cause permanent hearing damage. To protect employees it is management's responsibility to make sure they are not exposed to noise levels in excess of the standards. The current standard is 90 decibles A-weighted (dBA) for an eight hour exposure. Even at this noise level, hearing damage can be expected 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 85-90 dBA noise levels for eight hours daily. If no hearing loss is observed, ear protection is not required.

At greater than 90 dBA exposures (eight hours per day) or for higher noise levels in excess of the allowable time (e.g., 100 dBA for more than two hours) a continuing, effective hearing conservation program must be administered. Reference to the following table gives estimates of noise levels and the maximum allowable exposure times. It is required that either engineering controls such as enclosing noisy equipment, or administrative controls, such as limiting time of exposure, be utilized to reduce noise level or the exposure time to comply with the standard. If these control measures are not feasible, then effective personal protective equipment is required. There are many forms and types of ear protection that can be considered from ear muffs to ear plugs. Some are more useful than others, depending on the noise level, the frequency of the noise, and how well they fit the individual. It is necessary to provide protection that is effective and reasonably comfortable to the wearer.

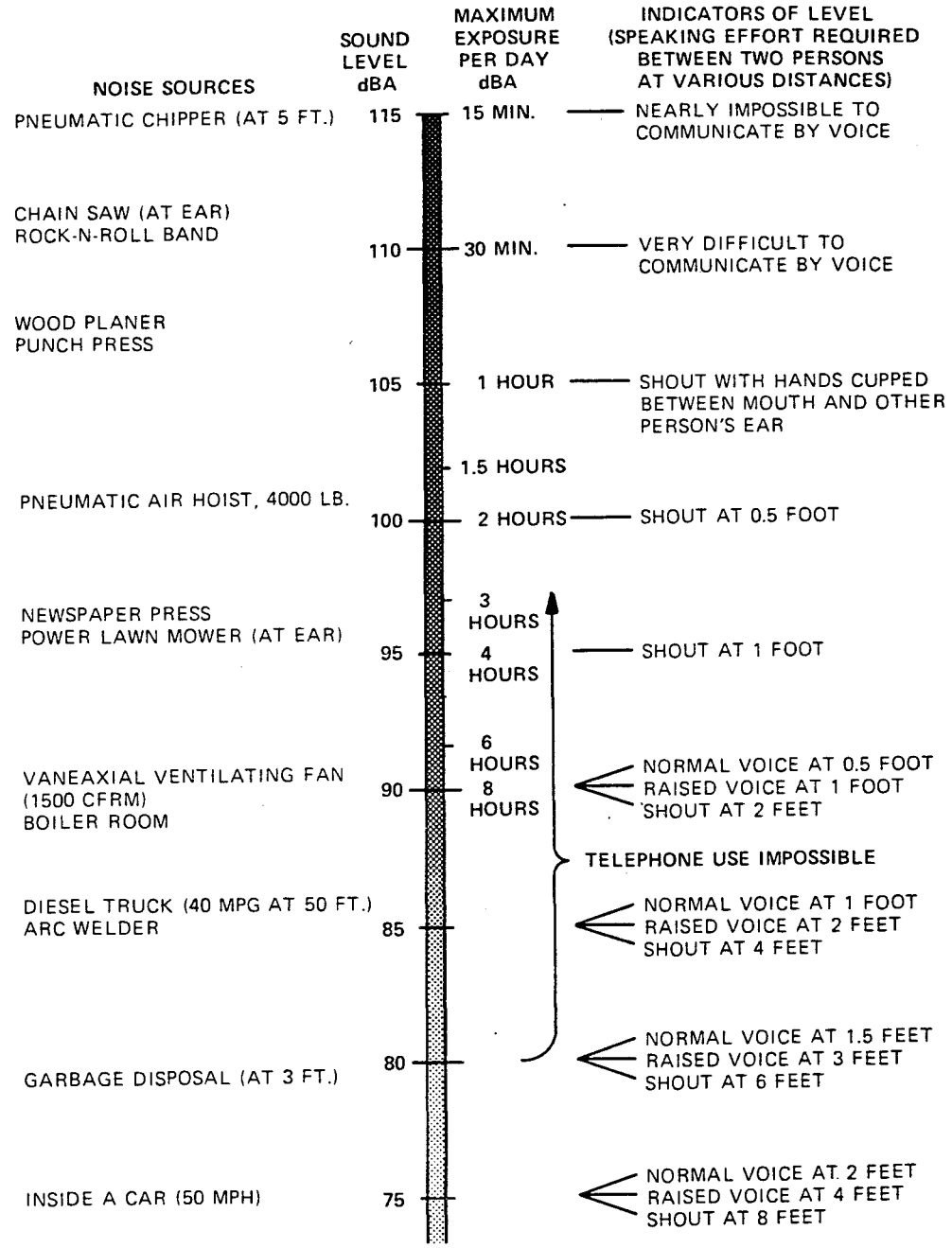
The following table is provided to assist in the evaluation of the noise levels in the workplace. If referral to the table indicates that levels and time of exposure are such that corrective action is needed, it is recommended that professional help be sought to correct the problem. A noise survey by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

NIOSH

FREQUENTLY VIOLATED REGULATIONS

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (cont.)

PERMISSIBLE NOISE EXPOSURES



NIOSH

FREQUENTLY VIOLATED REGULATIONS

HAZARDOUS MATERIALS

Many flammable and combustible materials are used in hotels and motels. They include paints, thinners, solvents for cleaning parts, gasoline, oils, and others.

STORAGE

Paints, oils, varnishes, thinners, and other combustible or flammable liquids must be stored in approved, fire-resistant metal or wooden storage cabinets or rooms. (When they are stored for 30 days or less, this requirement does not apply.)

Only one day's supply of paint should be outside of an approved storage area.

Storage cabinets must be distinctly designated "Flammable—Keep Fire Away", and be able to withstand a 10-minute fire test, the internal temperature remaining at 325°F (National Fire Prevention Assn. 1969).

1. Metal cabinets must be constructed of 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 cabinet.
2. Wooden cabinets must be constructed of one-inch plywood with rabbetted joints fastened two-directionally with flathead screws.
3. Storage rooms are required to have:
   a. Explosion-proof lights.
   b. Ventilation with at least six air changes per hour.

(Consult the OSHA standards for more specific details for cabinets or rooms.)

NIOSH

FREQUENTLY VIOLATED REGULATIONS

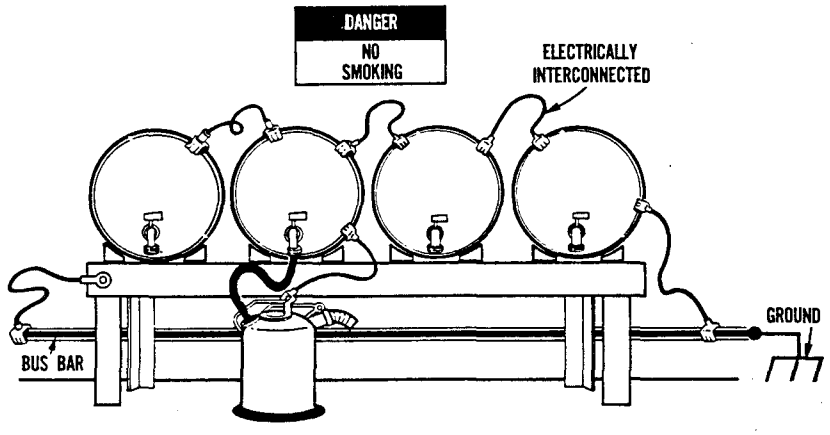
HAZARDOUS MATERIALS (cont.)

FLAMMABLE AND COMBUSTIBLE LIQUIDS

Flammable and combustible liquids are categorized by their ease of ignition. Flammable liquids are more easily ignited than combustible ones. Some examples of flammables are gasoline, acetone, and lacquer thinner. Examples of combustibles are kerosene, fuel oil, and Stoddard solvent.

1. The connections on all drums and piped flammable and combustible liquids must be vapor-and-liquid tight.

2. When flammable liquids are transferred from one container to another, for example, from a bulk container to a portable container, they must be effectively bonded and grounded. This practice prevents electrical discharge (e.g., 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. These containers can be purchased in an industrial supply house.

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

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

NIOSH

FREQUENTLY VIOLATED REGULATIONS

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment is required whenever toxic substances can do bodily harm through absorption, inhalation, or physical contact. Various processes, environments, chemicals, or mechanical irritants constitute hazards for which personal protective equipment must be provided. This equipment includes protective devices for the eyes, face, head, and extremities, as well as protective clothing and respiratory devices. Furthermore, it must be safely designed and sufficiently well-constructed to provide the protection for which it is intended.

It is required that all personal protective equipment be maintained in a sanitary and reliable condition.

EYE PROTECTION

Eye protection is required where there is a possibility of an eye injury from flying particles, chips, caustic materials, etc. Employees must wear eye protection when using grinders, power drills, etc.

HEARING PROTECTION

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

PERSONAL PROTECTIVE CLOTHING

GLOVES

When handling hazardous liquids, employees must wear gloves which are impervious to such liquids. The gloves must be long enough to protect the forearms.

APRONS

When aprons are used as protection from corrosives, the material must also be impervious.

HEAD PROTECTION

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

NIOSH

FREQUENTLY VIOLATED REGULATIONS

PERSONAL PROTECTIVE EQUIPMENT (cont.)

FOOT PROTECTION

Foot protection is required to prevent injury from falling objects. Experience has shown that foot protection is needed in receiving and transferring inventory.

RESPIRATORY PROTECTION

NIOSH-approved respirators must be provided by the employer when air is contaminated with harmful dusts, fumes, mists, gases, or vapors. When respirators are used a respirator program must be established and include the following requirements:

1. Respirators designed to protect against the specific hazards to which the worker is exposed must be selected.
2. Written instructions covering selection and use of respirators must be available.
3. Employees must be trained in the use of respirators, their limitation, proper fitting, and maintenance.
4. Respirators should be cleaned at the end of each day's use. They are taken apart, washed, dried, and defective parts replaced.
5. Two people never wear the same respirator unless it has been cleaned and disinfected between uses.
6. All straps are tied and adjusted.
7. A good face seal—beards, sideburns, glasses may interfere.
8. Filters are 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.

NIOSH

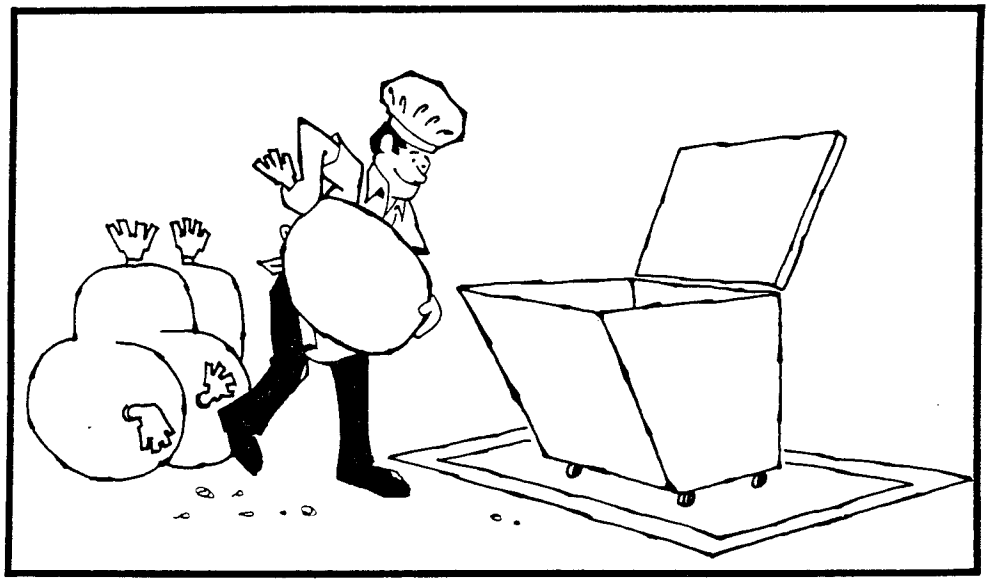
FREQUENTLY VIOLATED REGULATIONS

GENERAL ENVIRONMENTAL CONTROLS

GENERAL REQUIREMENTS

In any establishment where food is handled, processed, or sold, sanitation of the highest order should be maintained.

1. All places of employment must be kept orderly and in a sanitary condition.



2. The floor of every workroom must be kept in a clean, and if possible, dry condition. Where wet processes are used, drainage must be provided. Platforms, mats, or other dry standing spaces should be provided if practical.

3. Waste disposal. Any container used for solid or liquid waste that may spoil must be made leak proof, easy to clean, and be kept clean. The container must have a tight fitting cover, unless it can be maintained in a sanitary condition without a cover.

RODENT, INSECT, AND VERMIN CONTROL

Every enclosed work place and personal service room must be constructed, equipped, and maintained, so far as reasonably practicable, in such a manner as to prevent the entrance or harborage of rodents, insects, and vermin of any kind.

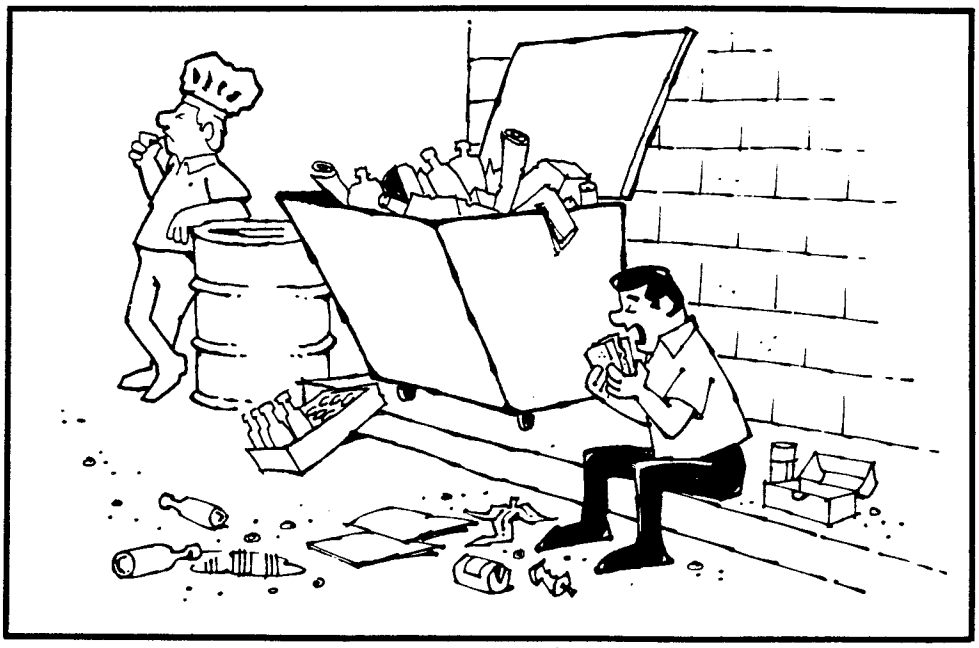
NIOSH

FREQUENTLY VIOLATED REGULATIONS

GENERAL ENVIRONMENTAL CONTROLS (cont.)

Federal standards for occupational safety and health which apply to your place of business require that:

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, including covered containers for sanitary napkins.
4. Separate toilet facilities must be provided for each sex. The exception to this is if only one person at a time uses a toilet room and the door can be locked.
5. One toilet and one lavatory must be provided for approximately every 15 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 materials which could be hazardous if ingested.
8. Employees working with hazardous substances should wash and remove contaminated clothing before eating, drinking, or smoking.

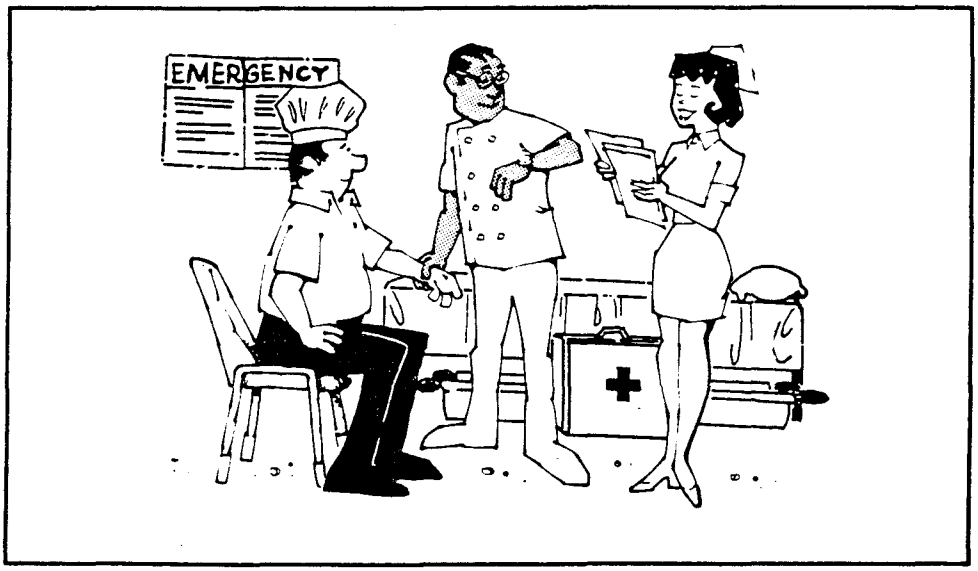
NIOSH

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 insure 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. On matters of health, medical personnel must be readily available by phone or on-site 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 in near proximity to the workplace (usually interpreted to be within 10 minutes under the worst conditions) which is used for treatment of injured or ill employees, 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 provide acceptable training.

NIOSH

FREQUENTLY VIOLATED REGULATIONS

MEDICAL AND FIRST AID (cont.)

2. First aid supplies must be readily available and approved by a consulting physician. 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.

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.

Note: First aid is immediate, temporary treatment given in the event of accident or illness—before the doctor arrives.

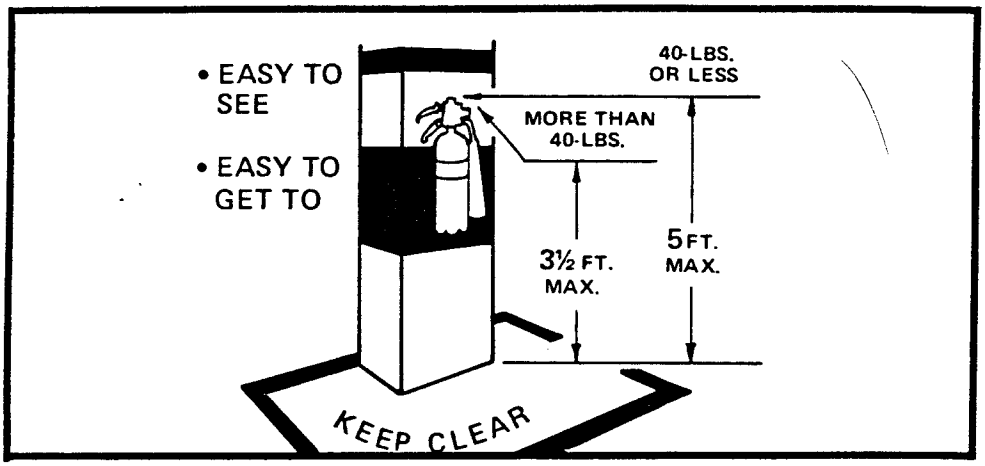
Some states have laws concerning first aid requirements including supplies (kits), training, and instructions on first aid given by the lay person. Trained employees should understand where first aid ends and treatment by a physicain begins.

Reference to "Recordkeeping Requirements" toward the back of this Guide gives a discussion of records which must be maintained for occupational injuries and illnesses.

NIOSH

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 five 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 insure 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 recharged or repaired to insure operability and safety. A tag must be attached to show the maintenance or recharge date and signature or intials of the person performing the servcie.
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.

NIOSH

FREQUENTLY VIOLATED REGULATIONS

FIRE PROTECTION (cont.)

TYPES OF SPRINKLER SYSTEMS

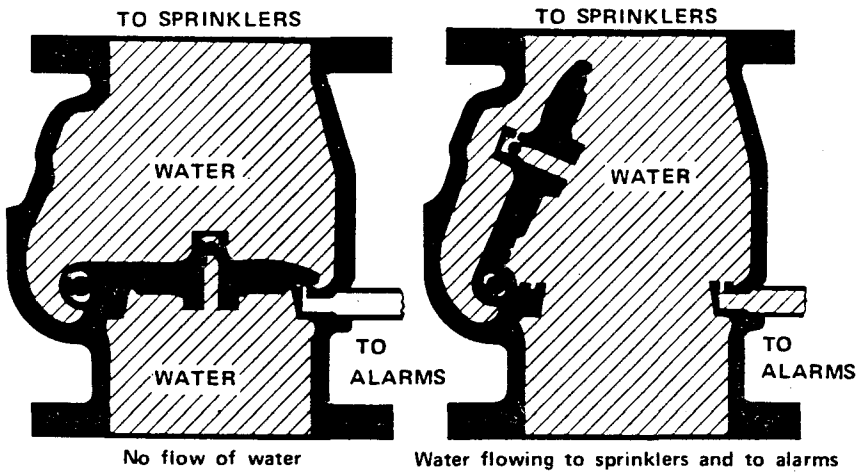
WET-PIPE SPRINKLER SYSTEMS

The wet-pipe system is filled up to the sprinklers with water under pressure. This system discharges water immediately when heat activates the sprinklers. If parts of the system are subjected to below freezing temperatures, it is necessary to protect those portions with anti-freeze solutions. The anti-freeze must be water soluble and noncombustible.

When the sprinkler system is connected to public water mains, care must be taken to use only anti-freeze solutions that are acceptable to local health authorities.

This method of maintaining a wet-pipe system in unheated areas is suitable only for small installations because of the difficulty and expense involved.

Note: Piping must never be closed off and drained to avoid freezing unless such action is judged safe by the fire authorities having jurisdiction in the area.



No flow of water

Water flowing to sprinklers and to alarms

FREQUENTLY VIOLATED REGULATIONS

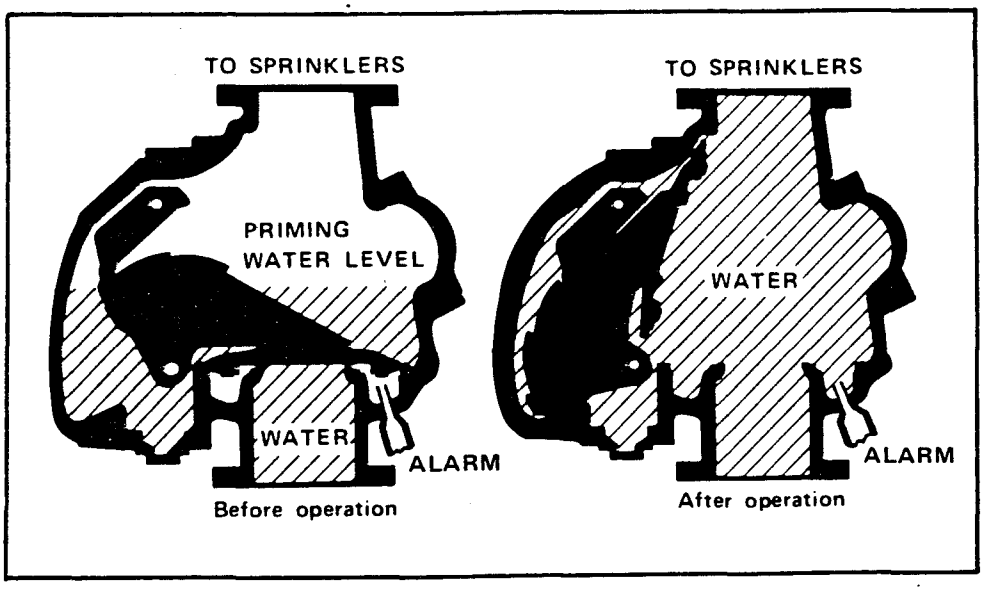
FIRE PROTECTION (cont.)

DRY-PIPE SYSTEMS

In areas exposed to freezing temperatures, a dry-pipe system is generally used rather than the wet-pipe and anti-freeze method. However, it is necessary that the water supply line and the dry-pipe valve be protected from freezing. Such protection is usually accomplished with a heated enclosure.

The dry-pipe system depends on compressed air in the pipes that holds back the water by exerting pressure on the dry-pipe valve. When a sprinkler opens, the air pressure drops allowing the dry-pipe valve to open and the water to flow into the system.

Though satisfactory in many cases, dry-pipe installations are unsuitable for extremely hazardous areas because the mechanics of the system allow too much time to elapse before water is discharged. This delay may be shortened by the use of quick-opening devices; however, such a system is still not adequate for protecting extremely hazardous areas.



NIOSH

FREQUENTLY VIOLATED REGULATIONS

FIRE PROTECTION (cont.)

PRE-ACTION SPRINKLER SYSTEMS

The main difference between a pre-action system and a standard dry-pipe system is that the water supply valve is opened by an independent, automatic, fire-detection system rather than by the fusing of a sprinkler. The water supply valve can also be controlled manually.

The major advantages of a pre-action system over a standard dry-pipe system are:

1. The water supply valve is opened more quickly because the independent fire detectors are usually more heat sensitive than the sprinklers.
2. The detection system also rings an alarm.
3. The water gets to the fire more quickly.
4. Since the sprinkler piping is normally dry, the pre-action system is suitable for areas subject to below-freezing temperatures.

THE DELUGE SYSTEM

This system is designed for protection of extremely hazardous areas. The deluge system drenches an entire area by admitting water to pipes which have sprinklers that are open at all times. Deluge valves are triggered by automatic fire-detection devices located near the sprinklers. The water supply valves can also be controlled manually. Large amounts of water can be applied to a fire very rapidly with the deluge system.

SPRINKLER ALARMS

A sprinkler alarm is designed to sound whenever there is any flow of water from a sprinkler system equal to or more than the amount of flow from a single sprinkler.

1. Such waterflow alarms must be provided on all sprinkler installations.
2. All alarms must be located where they are accessible for inspection, removal, and repair.
3. Under conditions of variable water pressure, a retarding device must be installed. The installation must have valves that allow repair or removal without shutting off the sprinklers. The valves must be arranged so that they may be locked or sealed in the open position.

FREQUENTLY VIOLATED REGULATIONS

FIRE PROTECTION (cont.)

DRY CHEMICAL SYSTEMS

Dry chemical, fire-protection systems must meet the design requirements of the National Fire Protection Association (NFPA No. 17-1969). Alarms or indicators of systems operations are required with thorough inspections made of the system at least annually. A report of the inspection by a competent inspector should be kept on file. Informal, visual inspections should also be made on a regular basis. These systems must be maintained in adequate operating condition at all times.

CARBON DIOXIDE SYSTEMS

1. When a carbon dioxide system is discharged, an oxygen deficient atmosphere may exist. Suitable safeguards shall be provided to insure prompt evacuation of and to prevent entry into such atmospheres.
2. At least annually, all carbon dioxide systems shall be thoroughly inspected and tested for proper operation.
3. All high pressure cylinders shall be weighed twice a year. If the net contents show a loss of more than 10%, it shall be refilled or replaced.
4. If low pressure containers show a loss of 10% or more, it shall be refilled unless minimum gas requirements are provided.

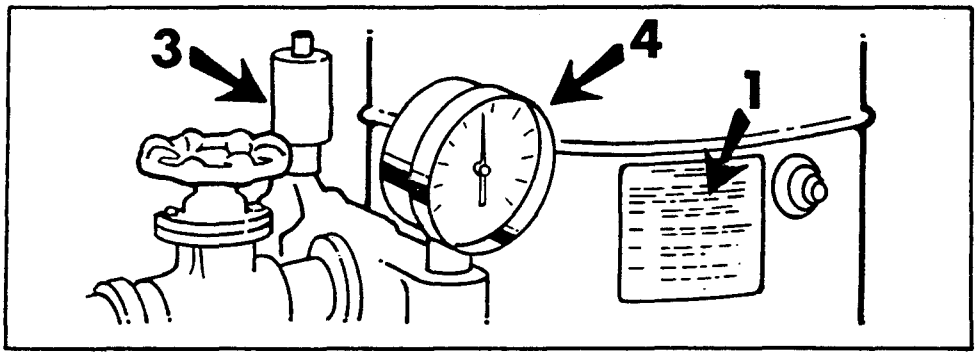
NIOSH

FREQUENTLY VIOLATED REGULATIONS

COMPRESSED AIR EQUIPMENT

Employees should be familiar with the air compressor 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 safety valve.

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FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE GUARDING

Machines designed for fixed locations must be securely anchored to prevent "walking" or tipping. 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.

Guarding devices must prevent the operator from having any part of the body in the danger zone during the operating cycle. A booklet entitled "The Principles and Techniques of Mechanical Guarding", OSHA 2057, can be obtained by writing to an OSHA Regional Office listed in the back of this book. Many equipment representatives can assist in obtaining the necessary protective devices.

The most common methods of guarding a hazard or hazardous machine operation are:

1. Enclosing the operation (preferred)
2. Interlocking devices
3. Moving barriers
4. Removal devices
5. Remote control
6. Two-hand tripping devices
7. Electronic safety devices

The following pages contain examples of mechanical actions, motions, and specific equipment that must be guarded. This listing is not intended to include all equipment that may require guarding.

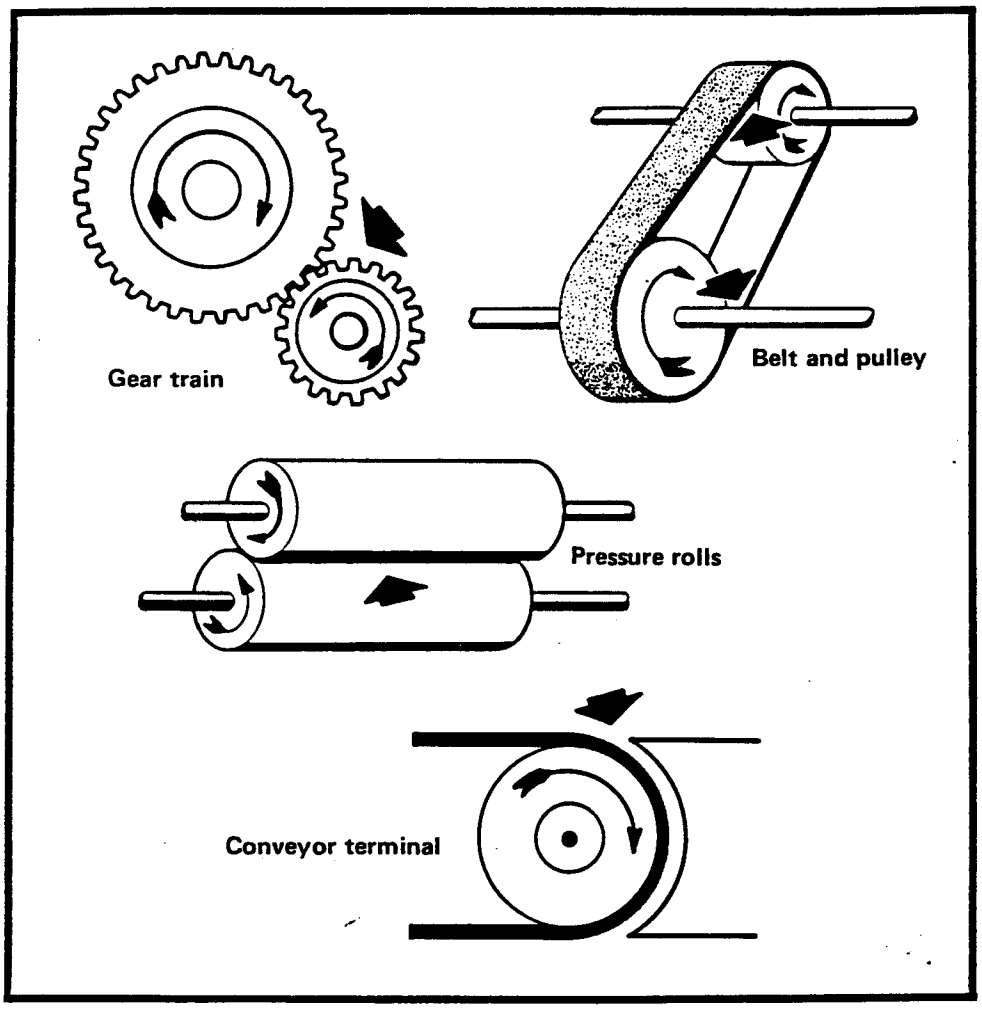
NIOSH

FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE GUARDING (cont.)

IN-RUNNING NIP POINTS

In-running nip points are a special danger existing only through 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 or crushed.



FREQUENTLY VIOLATED REGULATIONS

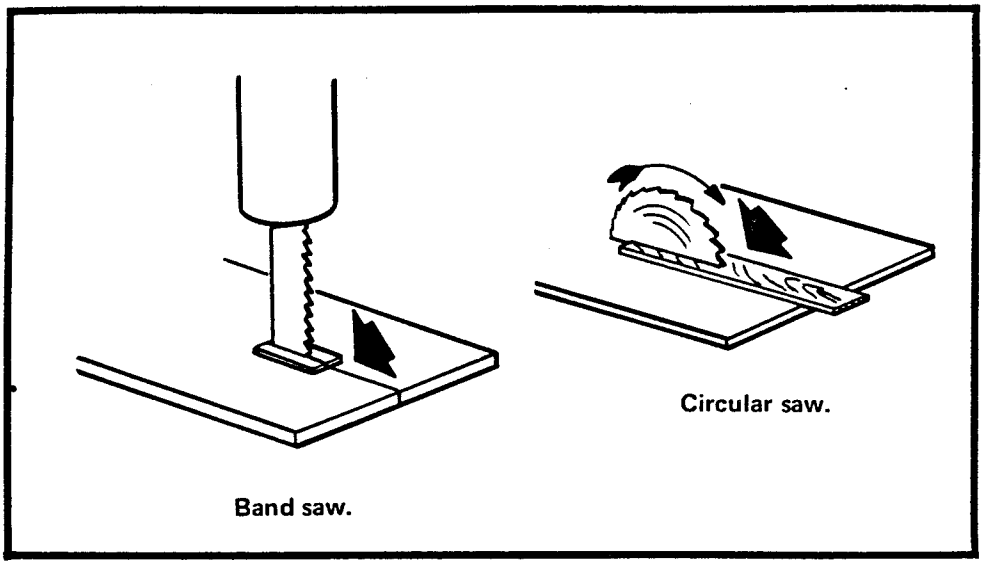
MACHINERY AND MACHINE GUARDING (cont.)

CUTTING ACTIONS

Cutting action results when rotating, reciprocating, or transverse motion is imparted to a tool so that material being 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, boring or drilling machines, and grinding machines.

EXAMPLES OF CUTTING ACTIONS



Band saw.

Circular saw.

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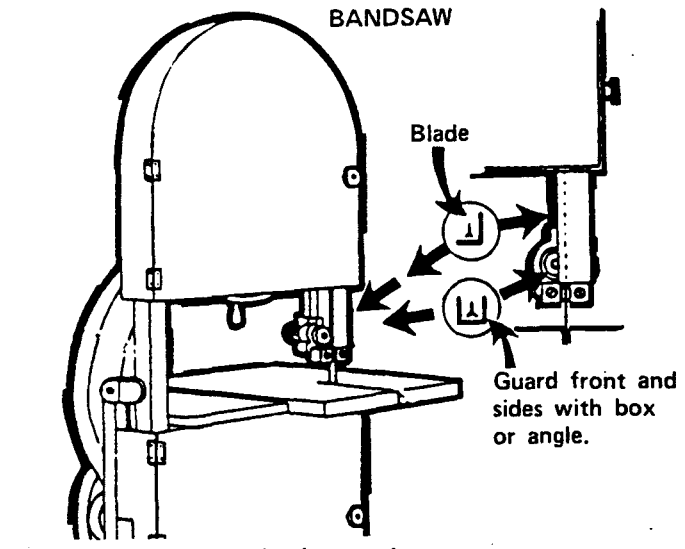
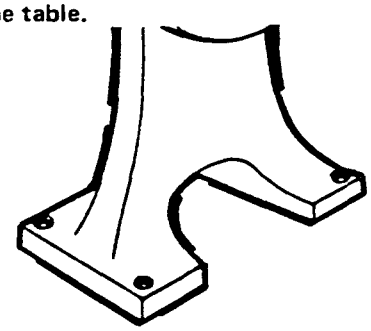
FREQUENTLY VIOLATED REGULATIONS

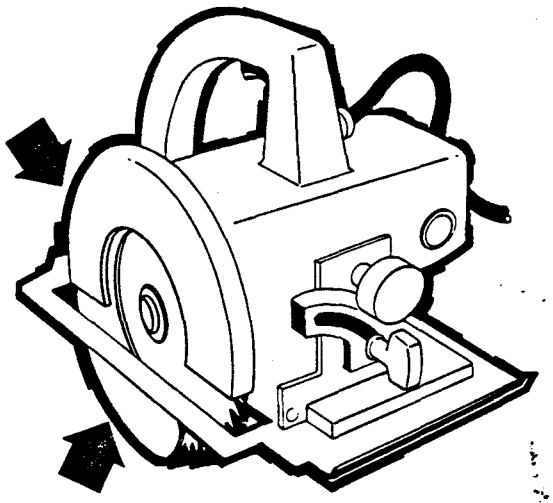
MACHINERY AND MACHINE GUARDING (cont.)

GUARDING CUTTING ACTIONS



Band or band resaw wheels must be completely enclosed and all portions of the blade must be guarded, except that portion between the guide rolls and the table.





NIOSH

FREQUENTLY VIOLATED REGULATIONS

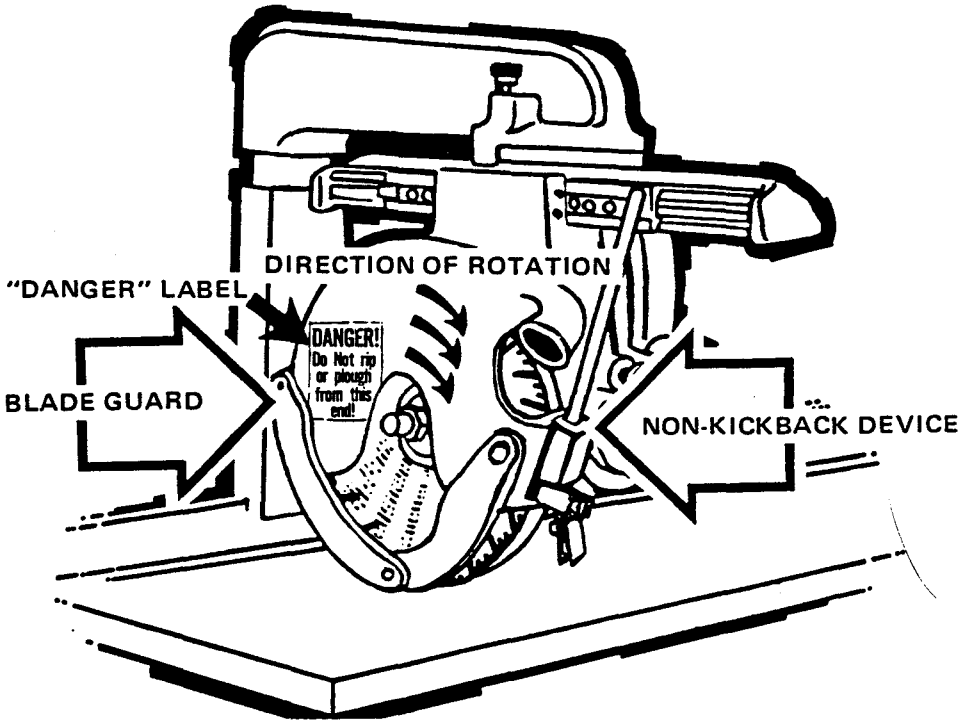
MACHINERY AND MACHINE GUARDING (cont.)

RADIAL SAWS

Must be provided with:

1. An upper hood to enclose the top portion of the blade down to a point that will include the end of the saw arbor. The sides of the lower exposed portion of the blade must be guarded to the full diameter of the blade by a device that automatically adjusts to the thickness of the stock being cut.
2. Non-kickback dogs on both sides of saw designed to provide adequate holding power for all thicknesses of material being cut, if used for ripping.
3. An adjustable stop, limiting forward travel of the blade beyond distance necessary to complete cut in repetitive operations.
4. A head which automatically returns to starting position.
5. Marking on hood showing the direction of saw rotation.

In addition, a permanent label must be affixed to the rear of of the guard reading: "DANGER. DO NOT RIP OR PLOUGH FROM THIS END".



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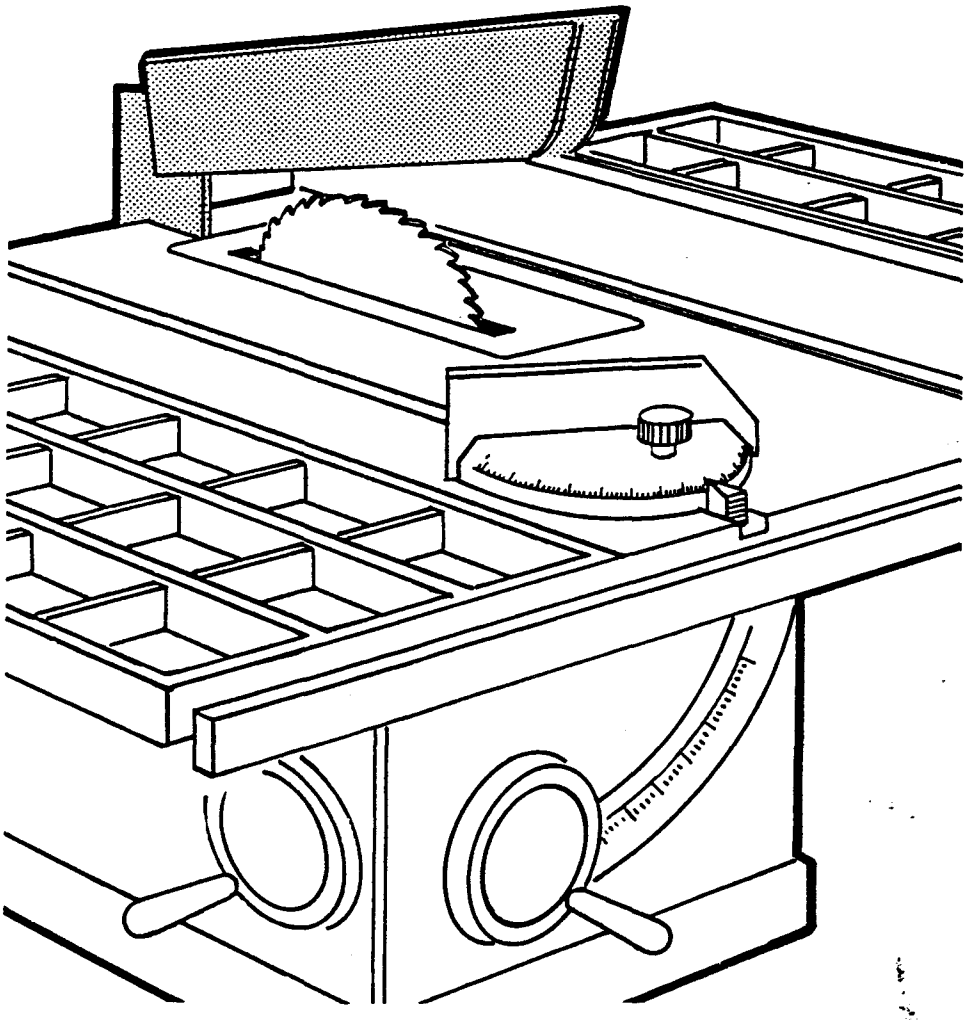
FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE GUARDING (cont.)

TABLE SAWS:

1. Table saws must be provided with a hood that covers the saw at all times.
2. Many times when rabbeting and dadoing, the standard hood guard may be impractical. In this case, an effective guarding procedure can be utilized by the use of a jig to hold the work, thereby keeping the hands away from the blade.
3. Table saws used for ripping must be equipped with an antikickback device and spreader.
4. The exposed part of the saw underneath the table must be guarded.



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FREQUENTLY VIOLATED REGULATIONS

MACHINERY AND MACHINE GUARDING (cont.)

SPECIFIC EXAMPLES FOR MACHINE GUARDING

GRINDERS

1. Wheel Guard—Safety guards must cover the spindle end, nut, and flange projections.

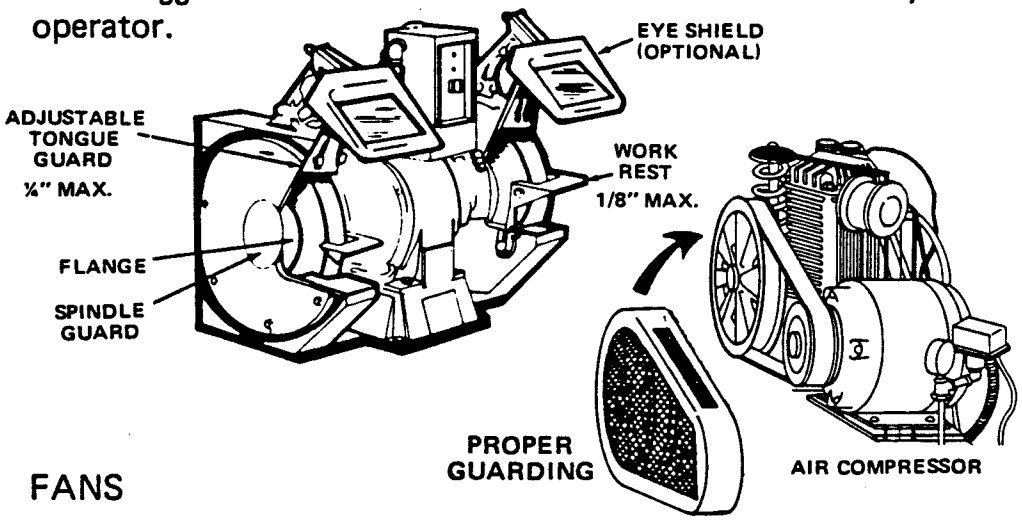
The exposed area of the grinding wheel and sides for the safety guards should not exceed more than one-fourth of the entire wheel.

When measuring the guard opening, the visors 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—These rests must be of strong construction and designed to be adjustable to compensate for wheel wear. Work rests must be closely adjusted to the wheel, with a maximum clearance of 1/8 inch, to prevent the work from becoming jammed between the wheel and the work rest.

3. Exposure Adjustment or Tongue Guards—This safety guard 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 ¼ inch.

4. Goggles or a Face Shield—These 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 ½ inch.

AIR COMPRESSORS

Must have their flywheel and drive pulley fully enclosed.

NIOSH

FREQUENTLY VIOLATED REGULATIONS

HAND AND PORTABLE POWERED TOOLS

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

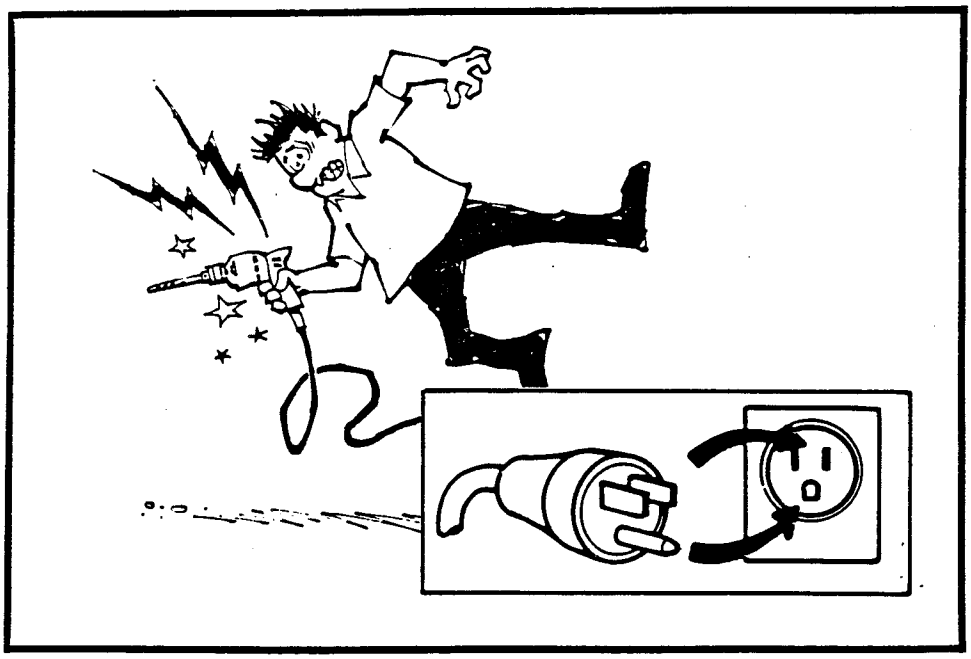
1. Each employer is responsible for the safe condition of tools and equipment used by employees, including tools and equipment which may be furnished by employees.

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 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.

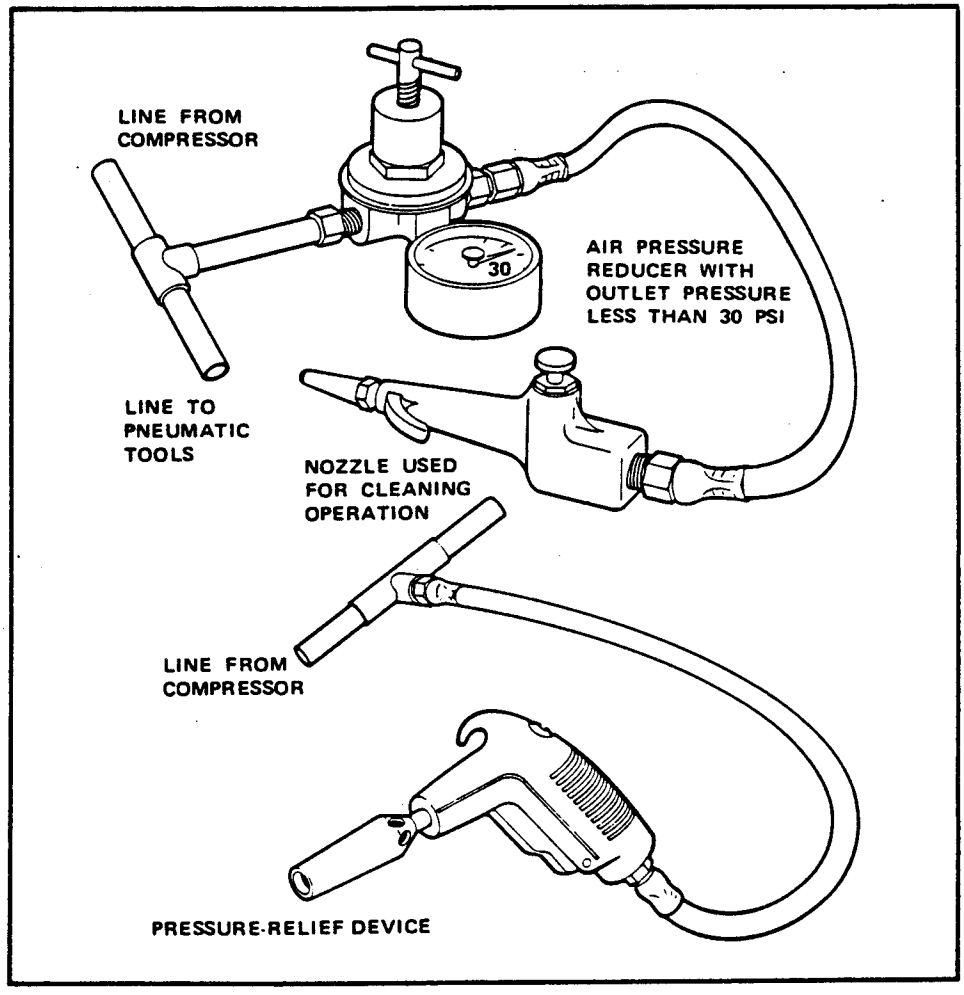
5. All hand-held portable electrical equipment must have its frame grounded by means of a separate ground wire or be doubly insulated and identified as such.



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 alternate 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 as illustrated below.



NIOSH

FREQUENTLY VIOLATED REGULATIONS

THE NATIONAL ELECTRICAL CODE (NEC)

ELECTRICAL REQUIREMENTS

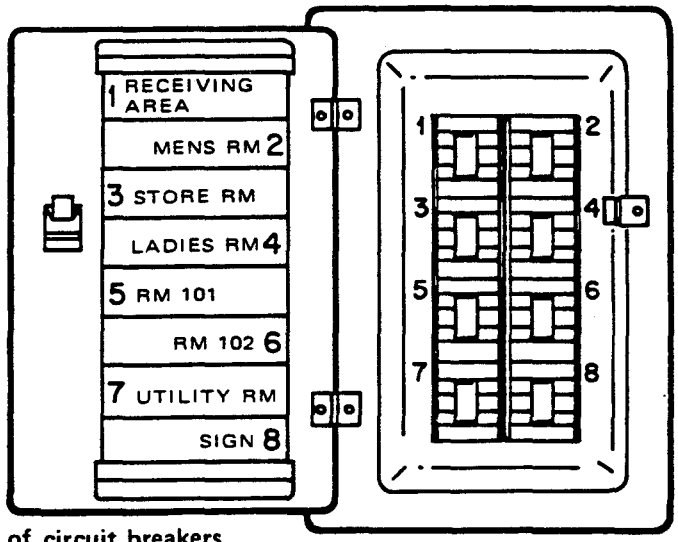
The National Electrical Code, NFPA 70-1971; ANSI C1-1971 has been adopted as a national consensus standard by OSHA (see "Information Sources"). The purpose of the NEC is the practical safeguarding of any persons and of buildings and their contents from hazards arising from the use of electricity. The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

Standards pertaining to electrical equipment and use have been cited as violations more frequently than any others.

It is required that:

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

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



Proper labeling of circuit breakers.

FREQUENTLY VIOLATED REGULATIONS

THE NATIONAL ELECTRIC CODE (NEC) (cont.)

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. When in a hazardous location (see "Hazardous Locations").
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, or
   b. Appliances, or
   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.
7. Flexible cords must be:
   a. Continuous lengths without splices or taps.
   b. Fastened so that there is no pull on joints or terminal screws.
   c. Replaced when frayed or insulation has deteriorated.

NIOSH

FREQUENTLY VIOLATED REGULATIONS

THE NATIONAL ELECTRICAL CODE (NEC) (cont.)

It is particularly important to be aware of electrical requirements because there are many damp and wet locations in hotels and motels. Among these requirements are:

WET LOCATIONS

A switch or circuit breaker in a wet location or outside of a building must be enclosed in a weatherproof enclosure.

DAMP OR WET LOCATIONS

In damp or wet locations, cabinets and cutout boxes of the surface type must be weatherproof and so placed or equipped as to prevent moisture or water from entering and accumulating within the cabinet or cutout box, and be mounted so there is at least ¼-inch of air space between the enclosure and the wall or other supporting surface. It is recommended that boxes of nonconductive material be used with nonmetallic-sheathed cable.

In locations where walls are frequently washed or where there are surfaces of absorbent materials, such as damp paper or wood, the entire wiring system, including all boxes, fittings, conduits and cable used, must be mounted so that there is at least a ¼-inch air space between it and the wall or supporting surface.

NIOSH

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 health and safety activities and of identifying high risk areas of the business to which attention should be directed. Federal regulations require that employers with 11 or more employees at any time during the previous calendar year are required to complete OSHA Forms 100, 101 (or their equivalent), and 102. These records must be maintained for five years, excluding the current year. Forms 100 and 101 must be kept current to within six days.

The types of work-related injuries and illnesses which must be recorded are those involving fatalities, lost workdays, or those which are nonfatal and do not cause lost workdays for the employee, but do require medical treatment, job transfer or termination, or resulted in loss of consciousness. Employers are also required to report within 48 hours to OSHA any occurrence of a work-related fatal accident, or an accident requiring the hospitalization of five or more employees. An annual summary, Form 102, must be posted for the entire month of February.

Employers are required to maintain accurate records of certain potentially toxic or harmful physical agents which must be monitored or measured, and to promptly advise any employee of any excessive exposure and the corrective action undertaken. Examples are asbestos, ionizing radiation, etc.

For more detailed information, the booklet "Recordkeeping Requirements Under the Williams-Steiger Occupational Safety and Health Act of 1970" is available from OSHA.

NIOSH

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 its 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
Secretary of Labor

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

NIOSH

CHECKLISTS

Since safe conditions depend on vigilance for 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 its 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".

NIOSH

CHECKLISTS (Cont.)

WALKING AND WORKING SURFACES AISLES AND FLOORS (29 CFR 1910.22)	Yes	No
Are all places of employment kept clean and orderly?	☐	☐
Are floors, aisles, and passageways kept clean and dry and all spills cleaned up immediately?	☐	☐
Are floor holes, such as drains, covered?	☐	☐
Are permanent aisles appropriately marked?	☐	☐
Are wet and/or greasy areas covered with non-slip materials or mats?	☐	☐
Are mats (rubber and wood) in good repair?	☐	☐
Is spilled food cleaned up immediately?	☐	☐
Are broken dishes picked up immediately?	☐	☐
Are carpets kept tight so they will not develop rolls or bunch up?	☐	☐
Are all electric cords or phone cords run across aisles or passageways covered?	☐	☐
STORAGE LOFTS, SECOND FLOORS, ETC. (29 CFR 1910.22, .23)		
Are signs showing floor load capacity present?	☐	☐

CHECKLISTS (cont.)

	Yes	No
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 (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 seven foot overhead clearance?	☐	☐
Do stairs angle no more than 50° and no less than 30°?	☐	☐
LADDERS (29 CFR 1910.25., .26, .27)		
Have defective ladders (e.g., broken rungs or split side rails) been tagged as "DANGEROUS, DO NOT USE" and removed from service for repair or destruction?	☐	☐
Is it prohibited to use the top of an ordinary step ladder as a step?	☐	☐
Do fixed ladders have at least 3½ feet of extension at the top of the landing?	☐	☐

CHECKLISTS (cont.)

	Yes	No
Are goggles or face shields always worn when grinding?	☐	☐
Is the distance between the centerline of rungs on a fixed ladder and the nearest permanent object in back of the ladder at least seven inches or more?	☐	☐
Do all fixed ladders have a preferred pitch of 75°-90°?	☐	☐
EGRESS (29 CFR 1910.36-.38)		
Are all exits marked with an exit sign and illuminated by a reliable light source?	☐	☐
Is the lettering at least six inches high with the principle 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 being locked inside?	☐	☐

CHECKLISTS (Cont.)

OCCUPATIONAL HEALTH AND ENVIRONMENTAL CONTROL (29 CFR 1910.93,.94,.95)

	Yes	No
Is management aware of the hazards caused by various chemicals used in the establishment?	☐	☐
Is employee exposure to these chemicals kept within the acceptable levels?	☐	☐
Are eye wash fountains and safety showers provided in areas where chemicals, such as caustics, are used?	☐	☐
Are all containers, such as vats and storage tanks labeled as to their contents?	☐	☐
Are employees required to wear personal protective equipment (gloves, eye protection, or respirators) when handling hazardous materials?	☐	☐

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, or different methods of processing)?	☐	☐

NIOSH

CHECKLISTS (cont.)

	Yes	No
If engineering controls cannot reduce the noise to safe levels; have administrative controls, such as limiting worker-exposure in a given area, been started?	☐	☐
If necessary are affected employees given annual audiometric tests?	☐	☐
Do all employees in high-noise areas wear hearing protection?	☐	☐
Are annual noise surveys made to re-evaluate problem areas?	☐	☐

HAZARDOUS MATERIALS

FLAMMABLE AND COMBUSTIBLE LIQUIDS (29 CFR 1910.106)

Are all connections on drums and combustible liquid piping vapor and liquid tight?	☐	☐
Are flammable liquids kept in closed containers when not in use (e.g., parts cleaning tanks or pans)?	☐	☐
Are all spills of flammable or combustible liquids cleaned up promptly?	☐	☐
Is combustible waste material (oily rags, etc.) stored in covered metal receptacles and disposed of daily?	☐	☐

CHECKLISTS (cont.)

	Yes	No
Are bulk drums of flammable liquids grounded and bonded to containers during dispensing?	☐	☐
Are gasoline and other flammable liquids stored in approved containers?	☐	☐
Are LP-gas storage tanks guarded to prevent damage from vehicles?	☐	☐
Are "NO SMOKING" signs posted on LP-gas tanks?	☐	☐
Are storage cabinets for flammable and combustible liquids labeled "FLAMMABLE—KEEP FIRE AWAY?	☐	☐
Is there never more than one day's supply of paint outside of approved storage cabinets or rooms?	☐	☐
Are all paints, lacquers, or thinners, kept for more than 30 days stored in approved metal or wooden cabinets or in storage rooms?	☐	☐
Do metal cabinets meet the following requirements?		
18 gauge sheet iron.	☐	☐
Double wall with 1½" air space.	☐	☐
Three point lock on the door.	☐	☐

NIOSH

CHECKLISTS (cont.)

	Yes	No
Door sill is at least two inches above bottom of cabinet.	☐	☐
Do wood cabinets meet the following requirements?		
One inch plywood that will not break down or delaminate under fire conditions.	☐	☐
Are all joints are rabbetted.	☐	☐
If more than one door is used, is there at least a one inch rabbetted overlap.	☐	☐
Do inside storage rooms meet the following requirements?		
They have mechanical or gravity ventilation (at least six air changes per hour).	☐	☐
Have self closing doors.	☐	☐
Have a four inch sill.	☐	☐
Have explosion proof lights.	☐	☐

PERSONAL PROTECTIVE EQUIPMENT (29 CFR 1910.132-137)

Is personal protective equipment provided, used, and maintained wherever it is necessary?	☐	☐

CHECKLISTS (Cont.)

	Yes	No
Is employee-owned personal protective equipment, such as gloves and protective shoes, adequate and properly maintained?	☐	☐
Is eye protection available where debris or flying objects could be a hazard?	☐	☐
Are ear plugs or muffs provided and worn during noisy conditions?	☐	☐
Is slip-resistant footwear worn?	☐	☐

RESPIRATORY PROTECTION DEVICES
(29 CFR 1910.134)

	Yes	No
Are respirators provided 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 assigned for use by employees individually?	☐	☐
Are respirators cleaned and disinfected after use?	☐	☐

NIOSH

CHECKLISTS (cont.)

	Yes	No
Are respirators stored in a convenient, clean, and sanitary location?	☐	☐
Are routinely-used respirators inspected during cleaning?	☐	☐
Is the proper respirator in use for the hazards present? (For example, dust masks do not protect against solvent vapors.)	☐	☐

GENERAL ENVIRONMENTAL CONTROLS

SANITATION (29 CFR 1910.141-149)

	Yes	No
Are restrooms and washrooms kept in clean and sanitary condition?	☐	☐
Are covered receptacles for sanitary napkins provided in the women's restroom?	☐	☐
Are covered receptacles for waste food kept in clean and sanitary condition?	☐	☐
Is all water that is provided for drinking, washing, and cooking, suitable for drinking?	☐	☐
Are all outlets for water that is not suitable for drinking, clearly posted as "UNSAFE FOR DRINKING, WASHING, OR COOKING"?	☐	☐

CHECKLISTS (cont.)

	Yes	No
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)

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 first aid supplies readily available, inspected, and replenished?	☐	☐
Are first aid supplies approved by a consulting physician, indicating that they are adequate?	☐	☐
Are medical personnel readily available for advice and consultation on matters of employee health?	☐	☐
Is there a first aid kit easily accessible to the work area?	☐	☐

NIOSH

CHECKLISTS (cont.)

	Yes	No
Are emergency phone numbers posted?	☐	☐
Where employees may be exposed to injurious corrosive materials, are they provided with quick-drenching and flushing facilities for immediate emergency use?	☐	☐

FIRE PROTECTION
(29 CFR 1910.157, .159, .160)

Are extinguishers selected for the types of combustibles and flammables in the areas where they are to be used? Class A. Ordinary combustible material fires Class B. Flammable-liquid, or grease fires Class C. Energized-electrical-equipment fires	☐	☐
Are extinguishers fully charged and in their designated places?	☐	☐
Are extinguishers located along normal paths of travel?	☐	☐
Are extinguisher locations free from obstruction or blockage?	☐	☐
Are all exit routes always kept free of obstructions?	☐	☐

CHECKLISTS (cont.)

	Yes	No
Are extinguishers not mounted too high? If not exceeding 40 pounds, the top must not be higher than 5 feet above floor. 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 to exceed one year?	☐	☐
Are all extinguishers checked (by management or designated employee) monthly to see if they are in place or if they have been discharged, etc.?	☐	☐
Have all extinguishers been hydrostatically tested according to schedules set for the type of extinguisher?	☐	☐

AUTOMATIC SPRINKLER (if applicable)

Is there at least one automatic water supply of adequate pressure, capacity, and reliability?	☐	☐
Are water-flow alarms provided on all sprinklers?	☐	☐
Are the sprinkler systems periodically inspected and continuously maintained?	☐	☐
Is the clearance between sprinkler deflectors and the top of storage at least 18 inches? (see "Automatic Sprinkler Systems.)	☐	☐

NIOSH

CHECKLISTS (cont.)

	Yes	No
Are the heads or nozzles pointed in the direction of the potential fire?	☐	☐

DRY CHEMICAL SYSTEMS (if applicable)

Does a competent inspector make annual inspections and perform tests on all dry chemical systems?	☐	☐
Are the inspector's reports kept on file?	☐	☐
Are visual inspections regularly made?	☐	☐
Are all dry chemical systems continuously maintained?	☐	☐

CARBON DIOXIDE (CO_2) SYSTEMS

Are the CO_2 systems inspected and tested yearly?	☐	☐
Are the cylinders weighed or pressure checked twice a year and refilled or replaced if they show a loss of 10% or more?	☐	☐

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 in a deteriorated condition?	☐	☐

CHECKLISTS (cont.)

	Yes	No
Do the relief valves operate properly?	☐	☐
Are air tanks drained regularly?	☐	☐
Is the pressure-relief device and gauge in good operating condition?	☐	☐

MACHINE AND MACHINE GUARDING (29 CFR 1910.212)

Are belts, pulleys, and rotating shafts (air compressor, drill presses, etc.) properly 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 (lubrication fittings, etc.) recessed or covered with collars?	☐	☐
Are all pieces of equipment with an electric motor or any electrical connection effectively grounded?	☐	☐
Are sprockets and V-belt drives within reach of platforms and passageways or less than seven feet from the floor completely enclosed?	☐	☐

NIOSH

CHECKLISTS (cont.)

	Yes	No
Are fans less than seven feet above floor guarded, having openings ½ inch or less?	☐	☐
SAWS		
Are table saws properly guarded?	☐	☐
Is the lower portion of the blade on radial arm saws guarded?	☐	☐
Is there a device used to automatically return the radial saw back to its original position when released by the operator?	☐	☐
Are saws used for ripping equipped with anti-kick back devices?	☐	☐
ABRASIVE WHEEL MACHINERY (Grinders) (29CFR 1910.215)		
Is the work rest used and kept adjusted to within 1/8 inch of wheel?	☐	☐
Is the adjustable tongue on top side of grinder used and kept adjusted to within ¼ inch of wheel?	☐	☐
Do side guards cover the spindle, nut, and flange and 75% of the wheel diameter?	☐	☐
Are bench and pedestal grinders permanently mounted?	☐	☐

CHECKLISTS (Cont.)

HAND AND PORTABLE POWER TOOLS (29CFR 1910.242-244)

	Yes	No
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?	☐	☐
Has compressed air used for cleaning been reduced to 30 psi when dead ended?	☐	☐
Have employees been instructed that the use of compressed air to blow debris from clothing or body is prohibited because it can enter the body and cause serious harm?	☐	☐
Have deteriorated air hoses been replaced?	☐	☐
Are portable abrasive wheels appropriately guarded?	☐	☐
Have employees been made aware of the hazards caused by faulty or improperly used hand tools?	☐	☐

NIOSH

CHECKLISTS (cont.)

NATIONAL ELECTRICAL CODE

ELECTRICAL WIRING

	Yes	No
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?	☐	☐
Does all equipment connected by cord and plug have grounded connections?	☐	☐
Are electrical appliances such as vacuums, blowers, vending machines, etc. grounded?	☐	☐
Are all portable electrical hand tools grounded? (Double insulated tools are acceptable without grounding.)	☐	☐
Are breaker switches identified as to their use?	☐	☐
Do flexible cords and cables not run through holes in wall or ceiling or through doorways or windows?	☐	☐
Are flexible cords and cables free from splices or taps?	☐	☐

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?	☐	☐
Are flexible cords and cables not attached to building surfaces?	☐	☐
Is electrical equipment accessible?	☐	☐
Are all conduit connections intact?	☐	☐
Do all extension cords being used have a ground wire?	☐	☐
Are all extension cords in use of appropriate wiring to carry the current being drawn?	☐	☐
Are multiple plug adapters not used?	☐	☐

RECORDKEEPING (29 CFR 1904.2-.8)

Is employee poster (OSHA or equivalent state poster) prominently displayed?	☐	☐
Have occupational injuries or illnesses, except minor injuries requiring only first aid, been recorded on OSHA Form Nos. 100 and 101, or equivalent?	☐	☐

NIOSH

CHECKLISTS (Cont.)

	Yes	No
Has a summary of all occupational injuries and illnesses been compiled at the conclusion of each calender year and been recorded on OSHA Form No. 102? Was it posted during the month of February?	☐	☐
Have all OSHA records been retained for a period of five years, excluding the current year?	☐	☐

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

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-13A-1971	Sprinkler Systems, Maintenance
☐ NFPA-17-1969	Dry Chemical Extinguishing Systems
☐ NFPA-70-1971	National Electric Code

NATIONAL SAFETY COUNCIL
425 North Michigan Avenue
Chicago, Illinois 60611

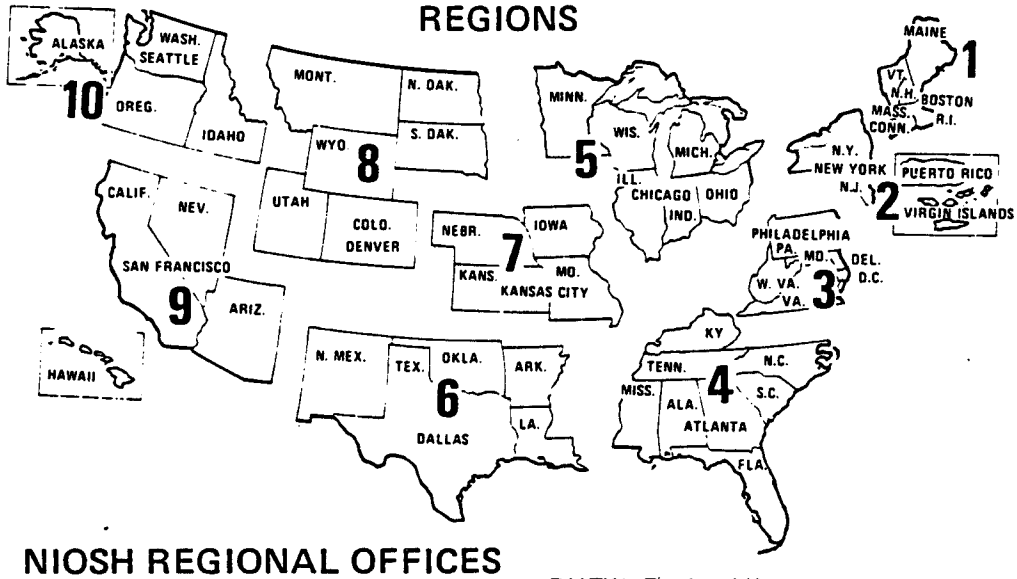
NIOSH AND OSHA REGIONAL DIRECTORS

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

NIOSH AND OSHA REGIONAL OFFICES

The following pages list NIOSH and OSHA regional offices. Either of these facilities serving the state 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 other OSHA publications.

REGIONS



NIOSH REGIONAL OFFICES

DHEW, Region I
Government Center (JFK Fed. Bldg.)
Boston, Massachusetts 02203
Tel.: 617/223-5807

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 13761
Philadelphia, Pennsylvania 19101
Tel.: 215/597-6716

DHEW, Region IV
50 Seventh Street, N.E.
Atlanta, Georgia 30323
Tel.: 404/626-5474

DHEW, Region V
300 South Wacker Drive
Chicago, Illinois 60607
Tel.: 312/353-1710

DHEW, Region VI
1114 Commerce Street (Rm. 8-C-53)
Dallas, Texas 75202
Tel.: 241/792-2261

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 (254 FOB)
San Francisco, California 94012
Tel.: 415/666-3781

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

KIND OF FIRE

DECIDE THE CLASS OF FIRE YOU ARE FIGHTING. . .

. . .THEN CHECK THE COLUMNS TO THE RIGHT OF THAT CLASS

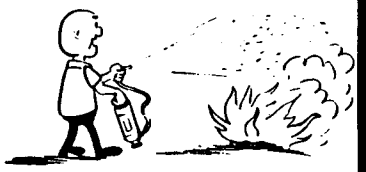
APPROVED TYPE OF EXTINGUISHER

MATCH UP PROPER EXTINGUISHER WITH CLASS OF FIRE SHOWN AT LEFT

	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.	✓	✗	✓	✓	✓	✓	✗
CLASS B FIRES — USE THESE EXTINGUISHERS — FLAMMABLE LIQUIDS, GREASE • GASOLINE • PAINTS • OILS, ETC.	✓	✓	✗	✗	✗	✓	✓
CLASS C FIRES — USE THESE EXTINGUISHERS — ELECTRICAL EQUIPMENT • MOTORS • SWITCHES ETC.	✗	✓	✗	✗	✗	✓	✓

HOW TO OPERATE

FOAM: Don't Play Stream into the Burning Liquid. Allow Foam to Fall Lightly on Fire.

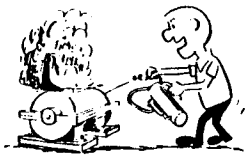


CARBON DIOXIDE: Direct Discharge as Close to Fire as Possible. First at Edge of Flames and Gradually Forward and Upward

SODA-ACID, GAS CARTRIDGE: Direct Stream at Base of Flame

PUMP TANK: Place Foot on Footrest and Direct Stream at Base of Flames

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



OSHA REGIONAL OFFICES

Region I
U.S. Department of Labor
Occupational Safety and Health Administration
18 Oliver Street, Fifth Floor
Boston, Massachusetts 02110 . . . . . Telephone: 617/223-6712/3

Region II
U.S. Department of Labor
Occupational Safety and Health Administration
1515 Broadway (1 Astor Plaza)
New York, New York 10036 . . . . . Telephone: 212/972-5941/2

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
300 South Wacker Drive, Room 1201
Chicago, Illinois 60606 . . . . . Telephone: 312/353-4716/7

Region VI
U.S. Department of Labor
Occupational Safety and Health Administration
7th Floor, Texaco Building, 1512 Commerce Street
Dallas, Texas 75210. . . . . Telephone: 214/794-2477/8/9 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

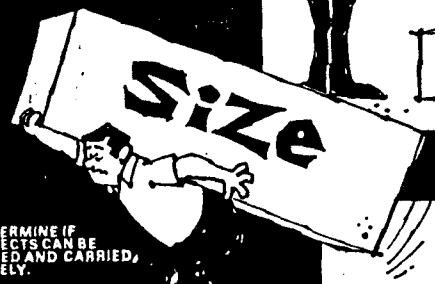
Region X
U.S. Department of Labor
Occupational Safety and Health Administration
1808 Smith Tower Building, 506 Second Avenue
Seattle, Washington 98104 . . . . . Telephone: 206/442-5930

☆ U.S. GOVERNMENT PRINTING OFFICE: 1975—659-925

HOW TO LIFT SAFELY

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

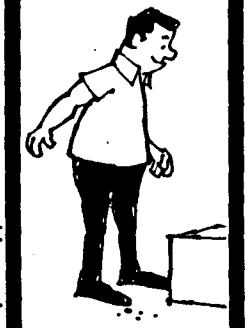
The factors that contribute to safe lifting are...



DETERMINE IF OBJECTS CAN BE LIFTED AND CARRIED SAFELY.

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

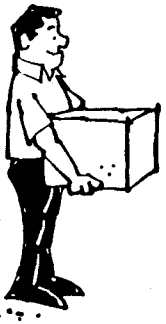
2. Place the feet close to the object to be lifted 8 to 12 inches apart for good balance.



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

4. Lift the load straight up—smoothly and evenly. Pushing 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.

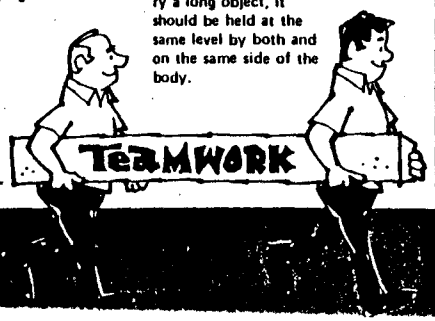
7. Setting the load down, is just as important as picking it up. Using leg and back muscles, comfortably lower load by bending your knees. When load is securely positioned, release your grip.

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

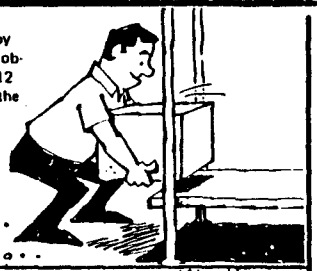
When lifting and carrying with another person—teamwork is important.

The load should be equally distributed. Movements must be coordinated so you both start and finish the lift action 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.



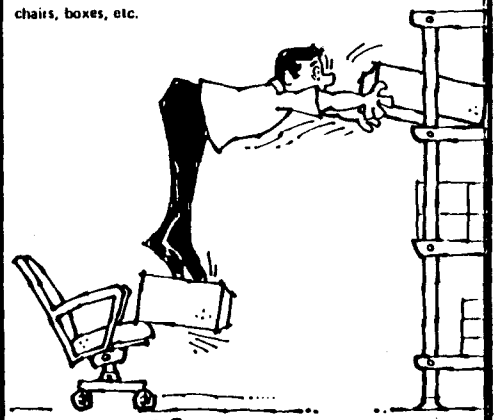
Avoid strain by storing heavy objects at least 12 inches above the floor.



Avoid awkward positions or twisting 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. _____