

# **PESH/OSHA STANDARDS**

**INFORMATION FOR WORKERS**



**New York State  
Public Employees  
Federation, AFL-CIO**

New York State  
**PUBLIC EMPLOYEES  
FEDERATION** AFL-CIO

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September 2003

Dear PEF Member:

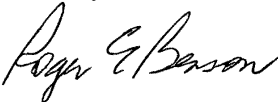
Health and safety for union members on the job is a top priority for the Public Employees Federation. Our members face the risk of on-the-job injuries every working day. It is a known fact that the injury and illness rates for public employees far exceed that of private sector employees.

In 1980, the New York State legislature enacted the Public Employees Safety and Health (PESH) Act which adopted all the safety and health standards set forth by the Occupational Safety and Health Act (OSHA) of 1970. PESH enforces health and safety standards for public employees and OSHA does the same for employees in the private sector.

Our union's Health and Safety Department has prepared this handbook to assist PEF members in recognizing the workplace hazards that are most frequently cited by PESH and OSHA. This handbook gives you an overview of the standards related to those hazards as well as a reference guide to do any further research.

PEF is committed to making the work environment safer for PEF members and to provide the resources needed to recognize and eliminate hazards before an accident occurs. By working together through our union, we can make important progress in every PEF workplace.

Sincerely,



Roger E. Benson  
President

# Forward

*In 1980, the State of New York enacted the Public Employees Safety and Health Act (PESH Act). This law provides health & safety protection to all New York public sector workers, including PEF members. Enforcement of the PESH Act is the responsibility of the NYS Department of Labor.*

*Implementation of the PESH Act requires the Department of Labor to adopt all occupational health and safety standards promulgated by the federal Occupational Safety and Health Administration (OSHA). This digest summarizes the most commonly cited standards and most hazardous situations. The standards are presented alphabetically followed by the reference to the appropriate standard. With few exceptions, the standards in this digest are from Title 29 of the Code of Federal Regulations (CFR), Part 1910.*

*OSHA has not promulgated standards for certain hazardous situations. These include: back injuries, tuberculosis exposure, workplace violence and indoor air quality. PEF members are confronted with each of these hazards everyday and we are working diligently for passage of strong standards in these areas. Lack of a standard addressing a specific hazard does not exclude the employer from correcting the situation. The general duty clause gives PESH the authority to cite employers for not correcting serious, recognized hazards.*

*This booklet is only a digest of basic applicable standards. It should not be considered as a complete substitute for any provisions of the Occupational Safety and Health Act of 1970, or for any standards promulgated under the Act and enforced by PESH. The requirements contained herein have been summarized and are abbreviated. The actual source standards are noted at the end of each paragraph; the CFR should be consulted for a more complete explanation of the specific standards listed.*

*This booklet also contains the address and telephone numbers of regional PESH offices and a sample PESH complaint form. If you believe you are exposed to hazardous conditions at your worksite, do not hesitate to contact your elected PEF representative, your Field Representative, or PEF's Health & Safety Department at (518) 785-1900 ext. 254. We can provide technical assistance and/or provide you with a PESH complaint form. PEF strongly encourages members to work through Health and Safety Committees to resolve issues of concern. Cooperation between labor and management is the most effective method of correcting problems. PESH complaints should be filed only when management refuses to cooperate.*

# Mission Statement

The mission of PEF's Health and Safety Department is to achieve safe and healthy environments in every PEF represented worksite. This goal will be accomplished by building a dynamic grass roots health and safety environment within PEF and in coalition with all prospective allies. To achieve this objective, we will demand employers comply with all applicable federal, state, and local health and safety standards and laws. However, the true measure of success will be whether we are able to go beyond the minimum standards and develop new approaches to health and safety.

To achieve this mission the Health and Safety Department works in partnership with membership based health and safety committees in four main activities:

- a) providing service, information, technical assistance, research, and referral on health and safety matters;
- b) enhancing skills and knowledge of staff and committee members through training, education, and awareness;
- c) developing initiatives to improve the health and safety of membership; and
- d) participating in national, state and local forums that advocate for the improvement of occupational safety and health through legislation and political action in coalition with other Unions and members of the community.

The Department's staff is available to assist members by providing building inspections and walk-throughs, worker's compensation assistance, PESH enforcement, and "Right to Know" information. Training is provided on many health and safety topics including: Indoor Air Quality, Infectious Diseases, Assault/Security in the Workplace, Asbestos in Buildings, Workplace Stress, Ergonomics/Back Injuries, and Infection Control Certification.

Also available are courses to fulfill OSHA/PESH training requirements. All training is performed statewide.

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## **Structure for Handling Health & Safety Problems**

*The following outline shows PEF's structure for handling health and safety problems:*

- 1) Members with safety problems should bring them to the attention of the steward or the local health and safety committee/council leader for action.
- 2) The PEF field representative should be copied on documentation regarding health and safety problems addressed at the local level so that they are aware of the activity and provide support as needed.
- 3) If problems cannot be solved at the local level, the steward, health and safety committee or council leader should contact the PEF field representative for assistance. Assistance provided may include strategic decision making, provision of resources, referral or direct intervention depending on circumstances and need.
- 4) PEF field representatives, health and safety committees, or council leaders may contact the PEF Health and Safety Department for assistance. In the event that the Health and Safety Department is contacted directly by health and safety committees or divisions/councils, the Health and Safety Department will keep the field representative informed.
- 5) As per Article 18 of the contract, local health and safety committees may appeal problems to agency level health and safety committees, and agency level committees may appeal them to the Statewide Committee for resolution.

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# General Industry Standards

## *Abrasive Blasting*

Blast cleaning nozzles shall be equipped with an operating valve which must be held open manually (deadpan or positive-pressure control). A support shall be provided on which the nozzle may be mounted when not in use.

### **1910.244(b)**

Blast-cleaning enclosures shall be exhaust ventilated in such a way that a continuous inward flow of air will be maintained at all openings in the enclosure during the blasting operation. **1910.94(a)(3)**

## *Abrasive Grinding*

Abrasive wheel machinery and portable power tools shall be used only on machines provided with safety guards with the following exceptions:

- Wheels used for internal work while within the work being ground;
- Mounted wheels, used in portable operations 2 inches (5 centimeters) and smaller in diameter-
- Type 16, 17, 18, 18R, and 19 cones, plugs, and threaded hole pot balls where the work offers protection. **1910.215(a)(1) & 1910.243(c)**

Abrasive wheel machinery and portable power tool safety guards shall cover the spindle end, nut, and flange protections except:

- Safety guards on all operations where the work provides a suitable measure of protection to the operator may be so constructed that the spindle end, nut, and outer flange are exposed;
- Where the nature of the work is such as to entirely cover the side of the wheel, the side covers of the guard may be omitted; and
- The spindle end, nut, and outer flange may be exposed on machines designed as portable saws. **1910.215(a)(2) & 1910.243(c)**

Work rests shall be adjusted so that they are no more than 1/8-inch (3.2 millimeters) from the abrasive wheel. **1910.215(a)(4)**

Abrasive wheel safety guards for bench and floor stands and for cylindrical grinders shall not expose the grinding wheel periphery for more than 65 degrees above the horizontal plane of the wheel spindle. The protecting member shall be adjustable for variations in wheel size so that the distance between the wheel periphery and adjustable tongue (tongue guard) or end of the peripheral member at the top shall never exceed 1/4 inch (6 millimeters).

### **1910.215(b)(3) & (4)**

Machines designed for a fixed location shall be securely anchored to prevent movement, or designed in such a manner that in normal operation they will not move. **1910.212(b)**

## *Accident Recordkeeping Requirements*

Employers must keep a log of occupational injuries and illnesses (OSHA

300/SH 900) for each place of work (establishment) that is expected to be in operation for one year or longer. **1904.30(a) and 12NYCRR 801.30(a)**

Employers must record all new cases of work-related injuries and illnesses if they result in death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. Employers must also record an injury or illness if it involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it does not result in death, days away from work, restricted work or job transfer, medical, or loss of consciousness. **1904.7(a) and 12NYCRR 801.7(a)**

Employers must enter each recordable injury or illness on the Log of Work-Related Injuries and Illnesses (OSHA 300/SH 900) and Injury and Illness Incident Report (OSHA 301/SH 900.2) within seven (7) calendar days of receiving information that a recordable injury or illness has occurred. **1904.29(b)(3) and 12 NYCRR 801.29(a)**

Employers may not enter an employees' name on the OSHA 300/SH 900 Log in a case considered a "privacy concern case". The employer must enter "privacy case" in the space normally used for the employee's name. The following injuries or illnesses must be considered privacy concern cases:

- An injury or illness to an intimate body part or the reproductive system;
- An injury or illness resulting from sexual assault;
- Mental illness;
- HIV infection, hepatitis, or tuberculosis;
- Needlestick injuries or cuts from sharp objects that are contaminated with another person's blood or other potentially infectious material; and
- Other illnesses, if the employee independently and voluntarily requests that his or her name not be entered on the log. Musculoskeletal disorders are not considered privacy concern cases. **1904.29(b)(6) & (7) and 12NYCRR 801.29(b) & (c)**

At the end of every calendar year, employers shall verify and post an annual summary of occupational injuries and illnesses for each establishment. The summary must include the calendar year covered, the company's name, establishment name, establishment address, annual average number of employees covered by the OSHA 300/SH 900 Log, and the total hours worked by all employees covered by the OSHA 300/SH 900 Log. The summary must be certified. **1904.32 and 12NYCRR 801.32**

The Log, the privacy case list (if one exists), the annual summary, and the Incident Report forms must be saved for five (5) years following the end of the calendar year that these records cover. **1904.33(a) and 12NYCRR 801.33(a)**

### ***Accident Reporting Requirements***

Within 8 hours after its occurrence, an employment accident that is fatal to

one or more employees or that results in the hospitalization of two (three for OSHA) or more employees must be orally reported by the employer to the nearest OSHA/PESH Office. See the back of the book for the nearest OSHA or PESH office. **1904.39 and 12NYCRR 801.39**

### ***Air Receivers***

All new air receivers installed, shall be designed and constructed to meet the standards of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section VIII, 1968. **1910.169(a)(2)**

A drainpipe and valve shall be installed for the removal of accumulated oil and water. **1910.169(b)(2)**

Indicating gauges and safety valves shall be installed and tested frequently. **1910.169(b)(3)(i) & (iv)**

### ***Aisles and Passageways***

Where mechanical handling equipment is used, sufficient safe clearance shall be allowed for aisles, at loading docks, through doorways, and wherever turns or passage must be made. Aisles and passageways used by mechanical equipment shall be kept clear and in good repair with no obstruction across or in aisles that could create hazards. **1910.22(b)(1) & 1910.176(a)**

Permanent aisles and passageways shall be appropriately marked. **1910.22(b)(2) & 1910.176(a)**

Covers and/or guardrails shall be provided to protect personnel from the hazards of open pits, tanks, vats, and ditches. **1910.22(c)**

### ***Asbestos***

The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fibers per cubic centimeter of air (0.1 f/cc) as an 8-hour time-weighted average (TWA). **1910.1001(c)(1)**

The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1 f/cc as averaged over a sampling period of 30 minutes. **1910.1001(c)(2)**

To help reduce worker exposure to airborne fibers, asbestos must be handled mixed, applied, removed, cut scored, or otherwise worked in a wet state. This “wet” method also must be used when products containing asbestos are removed from bags, cartons, or containers. If this is not possible, removal must be done in an enclosed or well-ventilated area. **1910.1001(f)(1)(vi)**

Respirators must be used (1) while feasible engineering and work practice controls are being installed or implemented; (2) during maintenance and repair activities or other activities where engineering and work practice controls are not feasible; (3) if feasible engineering and work practice controls are insufficient to reduce employee exposure; and (4) in **1910.1001(g)(1)**

### ***Belt Sanding Machines***

Belt sanding machines used for woodworking shall be provided with guards at each nip point where the sanding belt runs onto a pulley, and the unused run of the sanding belt shall be shielded to prevent accidental contact.

**1910.213(p)(4)**

### ***Bloodborne Pathogens***

Each employer having employee(s) who may incur skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials as a result of performing their professional duties shall establish a written exposure control plan designed to eliminate or minimize exposure.

**1910.1030(c)(1)(i)**

An employer, who is required to establish an Exposure Control Plan, shall solicit input from non-managerial employees responsible for direct patient care who are potentially exposed to injuries from contaminated sharps in the identification, evaluation, and selection of effective engineering and work practice controls and shall document the solicitation in the Exposure Control Plan. **1910.1030(c)(1)(v)**

Universal precautions shall be observed to prevent contact with blood or other potentially infectious materials. Under circumstances in which differentiation between body fluid types is difficult or impossible, all body fluids shall be considered potentially infectious. **1910.1030(d)(1)**

Employer shall make available the hepatitis B vaccine and vaccination series to all employees who have occupational exposure, and post-exposure evaluation and follow-up to all employees who have had an exposure incident.

**1910(f)(1)(i)**

Engineering and work practice controls shall be used to eliminate or minimize employee exposure. Where occupational exposure remains after instituting engineering and work practice controls, personal protective equipment shall also be used. **1910.1030(d)(2)(i)**

The employer shall establish and maintain a sharps injury log for the recording of percutaneous injuries from contaminated sharps. The information in the sharps injury log shall be recorded and maintained in such manner as to protect the confidentiality of the injured employee. **1910.1030(h)(5)(i)**

### ***Boilers***

Boiler design, construction, and inspection is referenced in the ASME Boiler and Pressure Vessel Code 1968 and current. **1910.106(b) & 1910.217(b)(12) & 1910.261(a)(3) & OSHA Technical Manual Cpl 22.20B, Change 10, (Pressure Vessel Guidelines)**

### ***Cadmium***

The standard establishes a single 8-hour, TWA permissible exposure limit (PAL) of 5 micrograms per cubic meter of air (5 ug/m(3)) and an action level

of 2.5 ug/m(3)) for all industries. The PAL applies to all cadmium compounds and does not differentiate between exposure to cadmium fumes or dust.

**1910.1027(b) & (c)**

In six major cadmium industries covered by the general industry standard (nickel-cadmium batteries, cadmium/zinc refining, lead smelting, pigments, plating, plastics), OSHA determined that it was not technologically or economically feasible to engineer a TWA PEL of (5 ug/m(3)). A separate engineering control air limit (SECAL) of either (1Syg/m(3)) or (50 ug/m(3)) was established for these industries. **1910.1027(f)(1)(ii)**

Employers must institute medical surveillance programs for all employees who, for 30 or more days per year, are exposed at or above the action level. Medical surveillance also is required for all employees who, although not currently exposed at or above the action level, have been exposed to cadmium prior to this standard by the employer for an aggregate period of more than 60 months. **1910.1027(1)(1)(A) & (B)**

***Chains, Cables, Ropes, and Hooks***

Hooks and chains shall be visually inspected daily and monthly with a full written, dated, and signed report of condition kept on file and available to appointed personnel. Running ropes shall be inspected monthly and a written report of condition kept on file and available to appointed personnel.

**1910.179(j)(2) & (m)(1)**

Hoist ropes on crawler, locomotive, and truck cranes shall be free from kinks or twists and shall not be wrapped around the load. 1910.180(h)(2) All U-bolt rope clips on hoist ropes on overhead and gantry cranes shall be installed so that the U-bolt is in contact with the dead end (short or nonload carrying end) of the rope. Clips shall be installed in accordance with the clip manufacturer's recommendation. All nuts on newly installed clips shall be tightened after 1 hour of use. **1910.179(h)(2)(v)**

***Chemical Information*** (See Hazard Communication or Specific Chemical Term)

***Compressed Air, Use of***

Compressed air used for cleaning purposes shall not exceed 30 pounds (13.5 kilograms) per square inch (6.5 square centimeters) when the nozzle end is obstructed or dead-ended, and then only with effective chip guarding and personal protective equipment. **1910.242(b)**

***Compressed Gas Cylinders***

Compressed gas cylinders shall be kept away from excessive heat, shall not be stored where they might be damaged or knocked over by passing or falling objects, and shall be stored at least 20 feet (6 meters) away from highly combustible materials. **1910.253(b)(2)(ii)**

Where a cylinder is designed to accept a valve protection cap, caps shall be in place except when the cylinder is in use or is connected for use.

**1910.253(b)(2)(iv)**

Inside of buildings, cylinders shall be stored in a well-protected, well-ventilated, dry location at least 20 feet (6 meters) from highly combustible materials such as oil or excelsior. Cylinders should be stored in definitely assigned places away from elevators, stairs, or gangway. Assigned storage spaces shall be located where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized persons. Cylinders shall not be kept in unventilated enclosures such as lockers and cupboards. **1910.253(b)(2)(ii)**

Also, the in-plant handling, storage, and utilization of all compressed gases in cylinders, portable tanks, rail tank cars, or motor vehicle cargo tanks shall be in accordance with Compressed Gas Association pamphlet P-1-1965.

## ***Compressed Gases***

### *Acetylene*

Acetylene cylinders shall be stored and used in a vertical valve-end-up position only. **1910.253(b)(3)(ii)**

Under no conditions shall acetylene be generated, piped (except in approved cylinder manifolds), or utilized at a pressure in excess of 15 pounds per square inch (psi) (103 kPa gauge pressure) or 30 psi (206 kPa absolute). The use of liquid acetylene is prohibited. **1910.253(a)(2)** The in-plant transfer, handling, and storage of acetylene in cylinders shall be in accordance with Compressed Gas Association pamphlet G-1.3-1959. **1910.102(a)**

### *Hydrogen*

Hydrogen containers shall comply with one of the following: (1) designed, constructed, and tested in accordance with appropriate requirements of ASME Boiler and Pressure Vessel Code, Section viii – Unfired Pressure Vessels—1968; or (2) designed, constructed, tested, and maintained in accordance with U.S. Department of Transportation specifications and regulations.

**1910.103(b)(1)(i)(a)(1) & (2)**

Hydrogen systems shall be located so that they are readily accessible to delivery equipment and to authorized personnel, shall be located aboveground, and shall not be located beneath electric power lines. Systems shall not be located close to flammable liquid piping or piping of other flammable gases.

**1910.103(b)(2)(a) through (d)**

Permanently installed containers shall be provided with substantial noncombustible supports on firm noncombustible foundations.

**1910.103(b)(2)(b)**

### *Nitrous Oxide*

The piped systems for the in-plant transfer and distribution of nitrous oxide

shall be designed, installed, maintained, and operated in accordance with Compressed Gas Association pamphlet G-8.1 - 1964. **1910.105**

### *Oxygen*

Oxygen cylinders in storage shall be separated from fuel-gas cylinders or combustible materials (especially oil or grease) a minimum distance of 20 feet (6 meters) or by a noncombustible barrier at least 5 feet high (1.5 meters) having fire-resistance rating of 1/2 hour. **1910.253(b)(4)(iii)**

### ***Control of Hazardous Energy (Lockout/Tagout)***

Whenever service or maintenance is performed on machines and equipment, it must be done with the machine or equipment stopped and isolated from all sources of energy. The energy-isolating device(s) for that machine or equipment must be locked out or tagged out in accordance with a documented procedure. Employees involved in the energy control program must be given training. Periodic inspections of the use of the procedures must be conducted at least annually to ensure the continued effectiveness of the program. The periodic inspection must include a review of the procedures with all employees who are authorized to use the procedures when lockout is used and with all authorized and affected employees when tagout is used. When outside contractors are performing servicing or maintenance within a plant or facility, each employer must coordinate with the other employers to ensure that no employees are endangered. When a group of employees are performing a servicing or maintenance activity, each employee must be afforded protection equivalent to the utilization of individual lockout or tagout. When servicing or maintenance extends over more than one shift, specific procedures shall be utilized to ensure continuity of personnel protection, including provision for the orderly transfer of lockout or tagout control. This must be done to minimize exposure to hazards from unexpected energizing, startup of the machine or equipment, or the release of stored or residual energy. **1910.147**

### ***Cranes (Overhead and Mobile), Hoists, and Derricks***

All functional operating mechanisms, air and hydraulic systems, chains, ropes slings, hooks, and other lifting equipment shall be visually inspected daily (frequent inspections). **1910.179(j)(2) & 1910.180(d)(3) & 1910.184(d)(2)**

Complete inspection of the crane shall be performed at 1 month to 12-month intervals (periodic inspections) depending on its activity, severity of service, and environmental conditions. The inspection shall include the following areas: deformed; cracked; corroded; worn; or loose members or parts; the brake system; limit indicators (wind, load); power plant; and electrical apparatus. **1910.179(i)(3) & 1910.180(d)(4) & 1910.181(d)(3)**

Unsafe conditions disclosed by the inspection requirements shall be corrected before the operation is resumed, and the crane shall not be operated

until all guards have been reinstalled. **1910.179(1)(3) & 1910.180(f) & 1910.181(e)(3)**

Overhead cranes shall have stops at the limit of travel of the trolley. Bridge and trolley bumpers or equivalent automatic devices shall be provided. Bridge trucks shall have tail sweeps. **1910.179(e)(1) through (4)**

The rated load of the crane shall be plainly marked on each side of the crane, and if the crane has more than one hoisting unit, each hoist shall have its rated load marked on it or its load block; also this marking shall be clearly legible from the ground or floor. **1910.179(b)(5)**

Pendant control boxes shall be clearly marked for identification of functions. **1910.179(g)(1)(v)**

There shall be no hoisting, lowering, or traveling while any employee is on the load or hook. **1910.179(n)(3)(v) & 1910.180(h)(3)(v) & 1910.181(i)(3)(v)**

### ***Dip Tanks Containing Flammable or Combustible Liquid***

Dip tanks with more than 150 gallons (570 liters) capacity, or 10 square feet (0.9 square meters) in liquid surface area, shall be equipped with a properly trapped overflow pipe leading to a safe location outside the building. **1910.108(c)(2)**

There shall be no open flames, spark producing devices, or heated surfaces having a temperature sufficient to ignite vapors in any vapor area. **1910.108(e)(1)**

Areas in the vicinity of dip tanks shall be kept as clear of combustible stock as practical and shall be kept entirely free of combustible debris. **1910.108(f)(1)**

All dip tanks exceeding 150 gallons (570 liters) liquid capacity or having a liquid surface area exceeding 4 square feet (.36 square meters) shall be protected with at least one of the following automatic extinguishing facilities: water spray system; foam system; carbon dioxide system; dry chemical system; or automatic dip tank cover. This provision shall apply to hardening and tempering tanks having a liquid surface area of 25 square feet (2.25 square meters) or more or a capacity of 500 gallons (1,900 liters) or more. **1910.108(c)(5) & (h)(1)(v)**

### ***Dockboards***

Dockboards shall be strong enough to carry the load imposed on them. **1910.30(a)(1)**

Portable dockboards shall be anchored or equipped with devices that will prevent their slipping. **1910.30(a)(2)**

Dockboards shall have handholds or other effective means to allow safe handling. **1910.30(a)(4)**

Positive means shall be provided to prevent railroad cars from being moved while dockboards are in position. **1910.30(a)(5)**

## ***Drinking Water***

Potable water shall be provided in all places of employment.

**1910.141(b)(1)(i)** Portable drinking water dispensers shall be designed, constructed, and serviced to ensure sanitary conditions, shall be capable of being closed, and shall have a tap. **910.141(b)(1)(iii)**

## ***Electrical***

Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees. **1910.303(b)(1)**

## ***Flexible Cords and Cables (Extension Cords)***

Flexible cords and cables shall be protected from accidental damage.

**1910305(a)(2)(iii)(G)**

Unless specifically permitted, flexible cords and cables may not be used as a substitute for the fixed wiring of a structure, where attached to building surfaces, where concealed or where run through holes in walls, ceilings, or floors, or where run through doorways, windows, or similar openings. Flexible cords shall be connected to devices and fittings so that strain relief is provided that will prevent pull from being directly transmitted to joints or terminal screws **1910305(g)(2)(iii)**

## ***Grounding/Grounded***

For a grounded system, a grounding electrode conductor shall be used to connect both the equipment grounding conductor and the grounded circuit conductor to the grounding electrode. Both the equipment grounding conductor and the grounding electrode conductor shall be connected to the grounded circuit conductor on the supply side of the service disconnecting means or on the supply side of the system disconnecting means or overcurrent devices if the system is separately derived. **1910.304(f)(3)(i)**

For an ungrounded service-supplied system, the equipment grounding conductor shall be connected to the grounding electrode conductor at the service equipment. **1910.304(f)(3)(ii)**

The path to ground from circuits, equipment, and enclosures shall be permanent and continuous. **1910.304(f)(4)**

## ***Guarding***

Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees. **1910.303(b)(1)**

## ***Identification***

Each disconnecting means shall be legibly marked to indicate its purpose, unless it is located so the purpose is evident. **1910.303(f)**

### *Listing and Labeling*

Listed or labeled equipment shall be used or installed in accordance with any instructions included in the listing or labeling. **1910.303(b)(2)**

### *Openings*

Unused openings in cabinets, boxes, and fittings shall be effectively closed. **1910.305(b)(1)**

### *Safety-Related Work Practices*

Safety-related work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment of circuits that are or may be energized. **1910.333(a)**

Electrical safety-related work practices cover both qualified persons (those who have training in avoiding the electrical hazards of working on or near exposed energized parts) and unqualified persons (those with little or no such training). **1910.331(a)**

There must be written lockout and/or tagout procedures (This may be a copy of **1910.333(b)(2)**, **1910.333(b)(2)(i)**)

Overhead power lines must be de-energized and grounded by the owner or operator of the lines, or other protective measures must be provided before work is started. Protective measures, such as guarding or insulating the lines, must be designed to prevent employees from contacting the lines.

#### **1910.333(c)(3)**

Unqualified employees and mechanical equipment must be at least 10 feet (3 meters) away from overhead power lines of 50kV and below. If the voltage exceeds 50kV, the clearance distance should be increased by 4 inches (6.6 centimeters) for each additional 10kV over 50kV. **1910.333(c)(3)(i) & (iii)**

OSHA requires portable ladders to have nonconductive side rails if used by employees who would be working where they might contact exposed energized circuit parts. **1910.333(c)(3)(iii)(7)**

### *Splices*

Conductors shall be spliced or joined with devices identified for such use or by brazing, welding, or soldering with a fusible alloy or metal. All splices, joints, and free ends of conductors shall be covered with an Insulation equivalent to that of the conductor or with an insulating device suitable for the purpose. **1910.303(c)**

### *Emergency Action Plans*

An emergency action plan to ensure employee safety in the event of fire and other emergencies shall be prepared in writing and reviewed with affected employees. The plan shall include the following elements: escape procedures and routes; critical plant operations; employee accounting following an

emergency evacuation; rescue and medical duties; means of reporting emergencies; and persons to be contacted for information or clarification.

**1910.38(b) and (c)(1) through (6) & 1910.120(q)**

Employers should apprise employees of fire hazardous material and processes to which they are exposed. **1910.38(b)(4) & 1910.120(q)**

***Emergency Flushing, Eyes and Body***

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use. **1910.151(c)**

***Ergonomics (See General Duty Clause)***

An ergonomic hazard may be caused or aggravated by repetitive motions, forceful exertions, vibration, sustained or awkward positioning, or mechanical compression of the hand, wrist, arm, back neck, shoulder, and leg over extended periods or from other ergonomic stressors.

***Exits***

The number of exit routes must be adequate. At least two exit routes must be available in a workplace to permit prompt evacuation of employees and other building occupants during an emergency, except as allowed in paragraph (b)(3) of this section. The exit routes must be located as far away as practical from each other so that if one exit route is blocked by fire or smoke, employees can evacuate using the second exit route. **1910.36(b) and (b)(1)**

Each exit discharge must lead directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside. **1910.36(c)(1)**

The door that connects any room to an exit route must swing out in the direction of exit travel if the room is designed to be occupied by more than 50 people or if the room is a high hazard area (i.e., contains contents that are likely to burn with extreme rapidity or explode). **1910.36(e)(2)**

Exit routes must be kept free of explosive or highly flammable furnishings or other decorations. Exit routes must be arranged so that employees will not have to travel toward a high hazard area, unless the path of travel is effectively shielded from the high hazard area by suitable partitions or other physical barriers. Exits and the way of approach as well as travel from exits shall be maintained so that they are unobstructed and are accessible at all times.

**1910.37(a)(1) through (a)(3)**

Each exit route must be adequately lighted so that an employee with normal vision can see along the exit route. Each exit must be clearly visible and marked by a sign reading "Exit". Exit signs shall be distinctive in color and provide contrast with surroundings. The word "EXIT" shall be of plainly legible letters, not less than 6 inches (15.2 centimeters) high with the principal strokes of the letters in the word "Exit" not less than three-fourths of an inch

(1.9 cm) wide. **1910.37(b)(1), (2), & (7)**

Any door, passage, or stairway that is neither an exit nor a way of exit access and that is so located or arranged as to be likely to be mistaken for an exit, shall be identified by a sign reading “Not an Exit” or similar designation. **1910.37(b)(5)**

### ***Explosives and Blasting Agents***

All explosives shall be kept in approved magazines. **1910.109(c)(10)(i)**

Stored packages of explosives shall be laid flat with topside up. Black powder, when stored in magazines with other explosives, shall be stored separately. **1910.109(c)(5)(i)**

Smoking, matches, open flames, spark-producing devices, and firearms (except firearms carried by guards) shall not be permitted inside of or within 50 feet (15 meters) of magazines. The land surrounding a magazine shall be kept clear of all combustible materials for a distance of at least 25 feet (7.5 meters). Combustible materials shall not be stored within 50 feet (15 meters) of magazines. The manufacture of explosives and pyrotechnics shall meet the requirements of OSHA’s Process Safety Management standard. **1910.109(k)(2) & (3)**

***Extension Cords*** (See Electrical, Flexible Cords, and Cables)

### ***Eye and Face Protection***

Protective eye and face equipment shall be required, used, and maintained in a sanitary and reliable condition, as necessary to protect employees from workplace hazards. **1910.133(a)(1)**

Eye and face protection equipment shall be in compliance with ANSI Z87.1 – 1968 (or a standard that is equally effective for eye and face protection, i.e. ANSI Z87.1 – 1989) and is in compliance with OSHA **1910.133.1910.133(a)(6)**

### ***Eyewash/Drench Shower***

Suitable facilities for quick drenching or flushing of the eyes and body shall be provided if there is a possibility that an employee might be exposed to injurious, corrosive materials. **1910.151(c)**

### ***Fan Blades***

When the periphery of the blades of a fan is less than 7 feet (2.1 meters) above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than 1/2 inch (12.5 millimeters) **1910.212(a)(5)**

### ***Fire Protection***

Where the employer has provided portable fire extinguishers for employee

use in the workplace, the employer also shall provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage firefighting. **1910.157(e)(3)**

If portable fire extinguishers are provided for employee use, the employer shall mount, locate, and identify them so they are readily accessible to employees without subjecting the employees to possible injury. These fire extinguishers shall be maintained in a fully charged and operable condition and kept in their designated places at all times except during use. **1910.157(c)(1) & (4)**

Portable fire extinguishers shall be given maintenance service at least once a year and a written record kept showing the maintenance or recharging date. A record shall be maintained of the service. **1910.157(c)(1)**

### ***Flammable Liquids***

Flammable liquids shall be kept in covered containers or tanks when not actually in use. **1910.106(e)(2)(iv)**

The quantity of flammable or combustible liquid that may be located outside of an inside storage room or storage cabinet in any one fire area of a building shall not exceed:

- 25 gallons (95 liters) of Class IA liquids in containers;
- 120 gallons (456 liters) of Class IB, IC, II, or III liquids in containers;  
or
- 660 gallons (2,508 liters) of Class IB, IC, II, or III liquids in a single portable tank. **1910.106(e)(2)(ii)(b)**

Flammable and combustible liquids shall be drawn from or transferred into containers within a building only through a closed piping system, from safety cans, by means of a device drawing through the top, or by gravity through an approved self-closing valve. Transferring by means of air pressure shall be prohibited. **1910.106(e)(2)(iv)(d)**

Not more than 60 gallons (228 liters) of Class I or Class II liquids, nor more than 120 gallons (456 liters) of Class III liquids may be stored in a storage cabinet. **1910.106(d)(3)(i)**

Inside storage rooms for flammable and combustible liquids shall be constructed to meet the required fire-resistive rating and wiring for these uses. **1910.106(d)(4)(i) & (iii)**

Outside storage areas shall be graded so as to divert spills away from buildings or other exposures, or be surrounded with curbs at least 6 inches (15 centimeters) high with appropriate drainage to a safe location for accumulated liquids. The areas shall be protected against tampering or trespassing, where necessary, and shall be kept free of weed, debris, and other combustible material not necessary to the storage. **1910.106(d)(6)(iii) & (iv)**

Adequate precautions shall be taken to prevent the ignition of flammable vapors. Sources of ignition include, but are not limited to, open flames, lightning smoking, cutting and welding, hot surfaces, frictional heat, static, electrical and mechanical sparks, spontaneous ignition, including heat-

producing chemical reactions and radiant heat. **1910.106(e)(6)(i)**

Class I liquids shall not be dispensed into containers unless the nozzle and container are electrically interconnected. **1910.106(e)(6)(ii)**

### ***Floors, General Conditions***

All floor surfaces shall be kept clean, dry, and free from protruding nails, splinters, loose boards, holes, or projections. **1910.22(a)(1) through (3)**

Where wet processes are used, drainage shall be maintained and false floors, platforms, mats, or other dry standing places shall be provided where practicable. **1910.22(a)(2)**

### ***Floor Loading Limit***

In every building or other structure, or part thereof, used for mercantile, business, industrial, or storage purposes, the loads approved by the building official shall be marked on plates of approved design that shall be supplied and securely affixed by the owner of the building, or his duly authorized agent, in a conspicuous place in each space to which they relate. Such plates shall not be removed or defaced but, if lost, removed, or defaced, shall be replaced by the owner or his agent. **1910.22(d)(1)**

### ***Floor Openings and Open Sides***

Standard railings with standard toeboards shall guard every stairway and ladder floor opening on all exposed sides except at the entrance. For infrequently used stairways, the guard may consist of a hinged cover and removable standard railings. The entrance to ladder openings shall be guarded to prevent a person walking directly into the opening. **1910.23(a)(1) & (2)**

Every hatchway and chute floor opening shall be guarded by a hinged floor opening cover equipped with standard railings to leave only one exposed side or a removable railing with toeboard on not more than two sides and a fixed standard railing with toeboards on all other exposed sides. **1910.23(a)(3)**

Either a standard railing with standard toeboard on all exposed sides or a floor hole cover that is hinged in place shall guard every floor hole into which persons can accidentally walk. While the cover is not in place, the floor hole shall be attended or shall be protected by a removable standard railing. **1910.23(a)(8)**

Every open-sided floor, platform or runway 4 feet (1.2 meters) or more above adjacent floor or ground level shall be guarded by a standard railing with toeboard on all open sides, except where there is entrance to a ramp, stairway, or fixed ladder. Runways not less than 18 inches (45 centimeters) wide used exclusively for special purposes may have the railing on one side omitted where operating conditions necessitate. **1910.23(c)(1) & (2)**

Regardless of height, open-sided floors, walkways, platforms, or runways above or adjacent to dangerous equipment shall be guarded with a standard railing and toeboard. **1910.23(a)(3)**

### ***Foot Protection***

Foot protection equipment shall be worn when there is reasonable probability that such equipment can prevent injury. **1910.132(a)**

Safety-toe footwear shall meet the requirements of ANSI Z41.1-1983, Standard for Men's Safety-Toe Footwear. **1910.136**

### ***Forklift Trucks (Powered Industrial Trucks)***

If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition. **1910.178(p)(1)**

High-lift rider trucks shall be equipped with substantial overhead guards unless operating conditions do not permit. **1910.178(e)(1)**

Fork trucks shall be equipped with vertical-load backrest extensions when the types of loads present a hazard to the operators. **1910.178(e)(2)**

The brakes of trucks shall be set and wheel chocks placed under the rear wheels to prevent the movement of trucks, trailers, or railroad cars while loading or unloading. **1910.178(m)(7)**

Only a trained and authorized operator shall be permitted to operate a powered industrial truck. Methods shall be devised to train operators in the safe operation of powered industrial trucks. **1910.178(1)**

### ***Formaldehyde***

Employee exposure to formaldehyde shall be limit to 0.75 parts per million (ppm) as an 8-hour TWA; a 2 ppm 15-minute short-term exposure limit (STEL); and an action level of 5 ppm. **1910.1048(c)(1) & (2)**

A medical surveillance program shall be instituted for any employee whose exposure exceeds the STEL or action level. Medical removal provisions with economic, seniority, and benefits protection may supplement medical surveillance programs, where necessary. **1910.1048(1)(1)(i) & (1)(8)(vi) through (viii)**

Hazard warning labels are required for all forms of formaldehyde, including solutions and mixtures composed of 0.1 percent or greater of formaldehyde and materials capable of releasing the substance in concentrations of 0.1 ppm or higher. Comprehensive labels must include warnings of potential carcinogenic effects where concentrations may exceed 0.5 ppm. **1910.1048(m)(1)(i) & (m)(3)(iii)**

The employer shall conduct training at the time of employees' initial assignment and annually thereafter for all employees exposed to a formaldehyde concentration of 0.1 ppm or higher. Such training is required to increase employees' awareness of formaldehyde hazard in their workplace and the control methods employed as well as an awareness of the signs and symptoms of health effects relate to formaldehyde exposure. **1910.1048(n)(1) through (3)**

## ***General Duty Clause (PL91-596)***

Hazardous conditions or practices not covered in an OSHA standard may be covered under Section 5(a)(1) of the Act (Section 27-a[1] of the state Labor Law), 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.”

## ***Hand Tools***

Portable electric equipment shall be handled in a manner that will not cause damage. When the cord and plug connected tools are relocated, they should be visually inspected before use. **1910.334(a)(2)**

Each employer shall be responsible for the safe condition of tools and equipment used by employees, including tools and equipment that may be furnished by employees. **1910.242(a)**

The frames of portable electrical tools and equipment, except when UL-approved double-insulated construction, shall be properly grounded.

### **1910.304(f)(5)(v)**

All hand tools shall be kept in safe condition. Handles of tools shall be kept tight in the tool and wooden handles shall be free of splinters or cracks. Wedges and chisels shall be free of mushroomed heads. Wrenches shall not be used when sprung to the point that slippage occurs. **1910.266(c)(2)(i) through (iv)**

All non-current-carrying metal parts of portable equipment and fixed equipment including their associated fences, housings, enclosures, and supporting structures shall be grounded. **1910.304(f)(7)(iii)**

## ***Hazard Communication***

The purpose of this standard is to ensure that the hazards of all chemicals produced or imported are evaluated and that information concerning their hazards is transmitted to employers and employees. This transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, material safety data sheets, and employee training.

### **1910.1200(a)(1)**

Employers shall develop, implement, and maintain at the workplace a written hazard communication program for their workplaces. Employers must inform their employees of the availability of the program, including the required list(s) of hazardous chemicals and material safety data sheets.

### **1910.1200(e)(1)(i) & (ii)**

The employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the identity of the hazardous chemical(s) contained therein and must show hazard warnings appropriate for employee protection. **1910.1200(f)(1)(i) & (ii)**

Chemical manufacturers and importers shall obtain or develop a material safety data sheet for each hazardous chemical they produce or import. Employers shall have a material safety data sheet for each hazardous chemical that they use and shall ensure that they are readily accessible to employees when they are in their work area. **1910.1200(g)(8)**

Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released); the physical and health hazards of the chemicals in the work area; the measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and the details of the hazard communication program developed by the employer, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information. **1910.1200(h)(2)(i)**

### ***Hazardous Waste Operations (Emergency Response)***

Any information concerning the chemical, physical, and toxicological properties of each substance known or expected to be present on site that is available to the employer and relevant to the duties an employee is expected to perform shall be made available to the affected employees prior to the commencement of their work activities. The employer may utilize information developed for the hazard communication standard for this purpose.

#### **1910.120(c)(8)**

An emergency response plan is required for all potential emergencies involving hazardous substances. This includes plant emergencies involving those substances to which employees are expected to respond. **1910.120(q)**

Training is required for all employees who work at hazardous waste cleanup sites, treatment storage and disposal (TSD) sites (Environmental Protection Agency permitted sites), and who respond to any emergencies involving hazardous substances. Training must cover the necessary information to perform these jobs safely including information on the proper personal protective equipment and procedures to safeguard employees against hazards and effects of exposure to toxic substances. **1910.120(e)**

A safety and health program that delineates responsibilities and methods for assuring employee safety is necessary for employees engaged in hazardous waste cleanup or TSD activities. **1910.120(b)(1) & (p)(1)**

Medical surveillance (physical examination) is required for employees dealing with hazardous waste, TSD, and hazardous materials. It is used to monitor employees for adverse exposure to harmful substances. **1910.120(1)**

Personal protective equipment must be selected and used to protect employees from hazardous substances and physical hazards. **1910.120(g)(3)**

When necessary, a decontamination procedure must be used to assure that hazardous substances are removed from workers before they leave the worksite as well as from equipment that is to be taken off site. **1910.120(k)(1) & (2)**

***Head Protection***

Head protection equipment (helmets) shall be worn when there is a possible danger of head injuries from impact, flying or falling objects, or electrical shock and burns. **1910.132(a)(1) & (c)**

Employees shall wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts. **1910.335(a)(1)(v)**

***Hooks*** (See Chains, Cables, Ropes, Hooks)

***Housekeeping***

All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition. **1910.22(a)(1) & 1910.141(a)(3)**

***Ionizing Radiation***

Employers shall be responsible for proper controls to prevent any employee from being exposed to ionizing radiation in excess of acceptable limits. **1910.96(b)(1) & (C)(I)**

Except as provided below, no employer shall possess, use, or transfer sources of ionizing radiation in such a manner as to cause any individual in a restricted area to receive in any period of one calendar quarter from sources in the employer's possession or control a dose in excess of those in the following table:

	<i>Rems<sup>1</sup> per calendar quarter</i>
Whole body: Head and trunk; active blood-forming organs; lens of eyes; or gonads . . . . .	1.25
Hands and forearms; feet and ankles . . . . .	18.75
Skin of whole body . . . . .	7.5

<sup>1</sup> *Rem is a measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of 1 Roentgen (r) of x-rays (1 millirems [rem] = 0.001 rem). The relation of the rem to other dose units depends on the biological effect under consideration and upon the conditions for irradiation.*

Exceptions: An employer may permit an individual in a restricted area to receive doses to the whole body greater than those permitted so long as:

(1) During the calendar quarter the dose to the whole body shall not exceed 3 rems; (2) the dose to the whole body, when added to the accumulated occupational dose to the whole body, shall not exceed 5 (N-18) rems, where "N" equals the individual's age in years at his/her last birthday; and (3) the employer maintains adequate past and current exposure records.

**1910.96(b)(2)(ii)**

Each radiation area shall be conspicuously posted with appropriate signs and/or barriers. **1910.96(e)(2)**

Employers shall maintain records of the radiation exposure to all employees for whom personnel monitoring is required. **1910.96(b)(2)(iii) & (n)(l)**

***Laboratory Safety***

Where hazardous chemicals, as defined by this standard, are used in the workplace, the employer shall develop and carry out the provisions of a written Chemical Hygiene Plan, which is:

- Capable of protecting employees from health hazards associated with hazardous chemicals in that laboratory; and
- Capable of keeping exposures below the limits specified in paragraph (c) of this section. **1910.1450(e)(1)**

The Chemical Hygiene Plan shall be readily available to all employees, employee representatives and, upon request the Assistant Secretary.

**1910.1450(e)(2)**

***Ladders, Fixed***

All rungs shall have a minimum diameter of 3/4-inch (1.8 centimeters), if metal or 1 1/8 inches (2.8 centimeters), if wood. They shall be a minimum of 16 inches (40 centimeters) wide and should be spaced uniformly no more than 12 inches (30 centimeters) apart. **1910.27(b)(1)(2) & (5)**

Cages, wells, or ladder safety devices for ladders affixed to towers, water tanks, or chimneys shall be provided on all ladders more than 20 feet (6 meters) long. Landing platforms shall be provided every 30 feet (9 meters) of length, except where no cage is provided, landing platforms shall be provided for every 20 feet (6 meters) of length. **1910.27(d)(1)(2) & (5)**

Tops of cages on fixed ladders shall extend 42 inches (1 meter) above the top of landing, unless other acceptable protection is provided, and the bottom of the cage shall be not less than 7 feet (2.1 meters) nor more than 8 feet (2.4 meters) nor more than 8 feet (2.4 meters) above the base of the ladder.

**1910.27(d)(1)(iii) & (iv)**

Side rails shall extend 3 1/2 feet (1 meter) above the landing.

**1910.27(d)(3)**

## ***Ladders, Portable***

Stepladders shall be equipped with a metal spreader or locking device of sufficient size and strength to securely hold the front and back sections in an open position. **1910.25(c)(2)(i)(f) & 1910.26(a)(3)(vii)**

Ladders shall be inspected frequently and those that have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as “Dangerous, Do Not Use.” **1910.25(d)(1)(x) & 1910.26(c)(2)(vii)**

Non self-supporting ladders shall be erected on a sound base with the base of ladder a distance from the wall or upper support equal to one-quarter the length of the ladder and placed to prevent slipping. **1910.25(d)(2)(i) & (iii); 1910.26(c)(3)(i) & (iii)**

The top of a ladder used to gain access to a roof should extend at least 3 feet (0.9 meters) above the point of contact. **1910.25(d)(2)(xv)**

OSHA requires portable ladders to have non-conductive side rails if used by employees who would be working where they might contact exposed energized circuit parts. **1910.333(c)(iii)(7)**

## ***Lead***

The employer shall ensure that no employee is exposed to lead at concentrations greater than 50 ug/m(3) averaged over an 8-hour period. **1910.1025(c)(1)**

***Lockout/Tagout*** (See Control of Hazardous Energy)

## ***Lunchrooms***

Employees shall not consume food or beverages in toilet rooms or in any area exposed to a toxic material. **1910.141(g)(2)**

A covered receptacle of corrosion-resistant or disposable material shall be provided in lunch areas for disposal of waste food. The cover may be omitted when sanitary conditions can be maintained without the use of a cover. **1910.141(g)(3)**

## ***Machine Guarding***

Machine guarding shall be provided to protect employees in the machine area from hazards such as those created by point of operation, nip points, rotating parts, flying chips, and sparks. The guard shall be such that it does not offer an accident hazard in itself. **1910.212(a)(1) & (2)**

The point-of-operation guarding device shall be so designed as to prevent the operator from having any part of his body in the danger zone during the operating cycle. **1910.212(a)(3)(iii)**

Some of the machines that usually require point-of-operation guarding are guillotine cutters, shears, alligator shears, power presses, milling machines, power saws, jointers, portable power tools, and forming rolls and calendars. **1910.212(a)(3)(iv)**

## ***Machinery, Fixed***

Machines designed for a fixed location shall be securely anchored to prevent walking or moving, or designed in such a manner that they will not move during normal operation. **1910.212(b)**

## ***Mechanical Power Presses***

The employer shall provide and ensure the usage of point-of-operation guards or properly applied and adjusted point-of-operation devices to prevent entry of hands or fingers into the point of operation by reaching through, over, under, and around the guard on every operation performed on a mechanical power press. This requirement shall not apply when the point-of-operation opening is 1/4 inch (6 millimeters) or less. **1910.217(c)(1) & (c)(2)(i)(a)**

Hand and foot operations shall be provided with guards to prevent inadvertent initiation of the press. **1910.217 (b)(4) & (3)(i)(a) through (g)**

All dies shall be stamped with the tonnage and stroke requirements or be otherwise recorded and readily available to the die setter. **1910.217(d)(6)**

The employer shall provide and enforce the use of safety blocks whenever dies are being adjusted or repaired in the press. Brushes, swabs, or other tools shall be provided for lubrication in order to prevent employees from reaching into the point of operation. **1910.217 (d)(9)(iv) & (v)**

Presence-sensing devices may not be used to initiate the slide motion except when used in total conformance with paragraph (h), 29 CFR 1910.217, which requires certification of the control system. **1910.217(h)**

Machines using full-revolution clutches shall incorporate a single-stroke mechanism. **1910.217(b)(3)(i)**

A main disconnect switch capable of being locked in the off position shall be provided with every power press control system. **1910.217(b)(8)(i)**

To ensure safe operating condition and to maintain a record of inspections and maintenance work, the employer shall establish a program of regular inspections of the power presses that shall include the date, serial number of the equipment, as well as the signature of the inspector. **1910.217(e)(1)(i)**

All point-of-operation injuries must be reported to OSHA or the State agency within 30 days. **1910.217(g)(1)**

## ***Medical Records***

Employers must provide newly hired workers with information on the availability of the employee's medical records, the person responsible for the records, and employees' rights of access. **1910.1020(g)(i) through (iii)**

## ***Medical Service and First Aid***

The employer shall ensure the ready availability of medical personnel for advice and consultation on matters of occupational health. **1910.151(a)**

When a medical facility for treatment of injured employees is not available in proximity to the work place, a person or persons shall be trained to render

first aid. First-aid supplies approved by a consulting physician shall be readily available. **1910.151(b)**

#### ***4,4' Methylenedianiline (MDA)***

An employer must ensure that no employee is exposed to an airborne concentration of MDA in excess of 10 parts per billion (ppb) as an 8-hour TWA; a 100 ppb, 15-minute STEL; and action level of 5 ppb; and that there is no dermal contact with MDA. **1910.1050(b) & (c)**

Employers must determine whether employees are subject to MDA exposure above the action level, 8-hour TWA, or STEL, or dermally.

#### **1910.1050(e)(1)(i), (e)(2) & (e)(8)**

Employers must limit airborne exposures to MDA with feasible engineering and work practice controls, supplemented by the use of respirators if necessary, and must limit dermal exposure by providing appropriate personal protective clothing and equipment; regulated areas must be established where exposure may exceed the 8-hour TWA, or dermal exposures to MDA can occur.

#### **1910.1050(f)(1)(i) & (ii) & (i)(1)**

Where dermal or elevated levels of MDA exposure may occur, employers may be required to provide hygiene facilities that include decontamination, change, equipment, shower, and lunch areas. **1910.1050(j)**

Hazards of exposure to MDA must be communicated to employees via posting signs in regulated areas, labeling containers of MDA, maintaining and MSDS for MDA, and by providing employees with an information and training program. **1910.1050(k)(1) through (3)**

Medical surveillance must be made available to employees exposed dermally to MDA for 15 or more days, exposed above the action level for 30 or more days per year, and in other situations where exposure to MDA may present health risks to employees. Benefits (pay, seniority) must be afforded employees whose exposure to MDA leads to a medical determination that, based on health considerations, the employee must be removed from such exposure. **1910.1050(m)(1) & (m)(9)(v)**

#### ***Noise Exposure***

Protection against the effects of occupational noise exposure shall be provided when the sound levels exceed those shown in Table G-16 of the Safety and Health Standards. Feasible engineering and/or administrative control shall be utilized to keep exposure below the allowable limit. **1910.95(a)**

When engineering or administrative controls fail to reduce the noise level to within the levels of Table G-16 of the Safety and Health Standards, personal protective equipment shall be provided and used to reduce the noise to an acceptable level. **1910.95(b)(1)**

In all cases, where the sound levels equal or exceed an 8-hour TWA of 85 decibels measured on the A scale, a continuing, effective hearing conservation program shall be administered. In addition, the employer shall develop and

implement a monitoring program. **1910.95(c) & (d)(1)**

Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.<sup>2</sup>

**Table G-16 Permissible Noise Exposure**

<i>Duration per day, hours</i>	<i>Sound level dBA slow response</i>
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

**1910.95(b)(2)**

The employer shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted pursuant to this section. **1910.95(f)**

The employer shall make available to affected employees or their representatives copies of this standard and also shall post a copy in the workplace. **1910.95(I)(1)**

***Nonionizing Radiation (Electromagnetic Radiation)***

Employers shall be responsible for proper controls to prevent any employee from being exposed to electromagnetic radiation in excess of acceptable limits. **1910.97(a)(2)**

Each electromagnetic radiation area shall be conspicuously posted with appropriate signs and/or barriers. **1910.97(a)(3)**

<sup>2</sup> When the daily noise exposure is composed of two or more periods of noise exposure of different levels their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions:  $CUT_i + C2IT2CIT_n$  exceeds unity, then the mixed exposure should be considered to exceed the limit value  $C_n$  indicates the total time in hours of exposure at a specified noise level, and  $T_n$  indicates the total time in hours of exposure permitted at that level. Exposure to impulsive or impact noise should not exceed 140 db peak sound pressure level.

### ***Permit-Required Confined Spaces***

The employer shall evaluate the workplace to determine if confined space conditions exist that necessitates permits for entry. **1910.146(c)(1)**

If permit-required confined spaces exist, exposed employees must be informed of the existence, location and dangers of the permit space by positive means, such as signs, or there must be an equally effective means of communicating the hazards of these spaces. **1910.146(c)(2)**

If confined space entry is required, a written permit program must be developed and initiated by the employer. **1910.146(c)(4)**

Before an employee enters the space, the internal atmosphere shall be tested with a calibrated direct-reading instrument, for oxygen content, for flammable gases and vapors, and for potential toxic air contaminants in that order. *Any employee who enters the space, or that employee's authorized representative, shall be provided an opportunity to observe the pre-entry testing required by this paragraph.* **1910.146(c)(5)(ii)(C)**

Employers shall consult with affected employees and their authorized representatives on the development and implementation of all aspects of the permit space program required by this section. **1910.146(l)(1)**

### ***Personal Protective Equipment (PPE)***

Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices, and protective shields and barriers, shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazards of processes or environment, chemical hazards, radiological hazards, or mechanical irritants encountered in a manner capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact. **1910.132(a)**

Where employees furnish their own personal protective equipment, the employer shall be responsible to ensure its adequacy and to ensure that the equipment is properly maintained and in a sanitary condition. **1910.132(b)**

All personal protective equipment shall be of safe design and construction for the work to be performed. **1910.132(c)**

The employer shall conduct an assessment to determine the appropriate PPE needed in each workplace. **1910.132(d)**

Employees must be trained on when and what PPE is necessary; how to don, doff, adjust, and wear PPE; the limitations of PPE; the proper care maintenance; and useful life and disposal of PPE. **1910.132(f)(1)**

### ***Portable Power Tools (Pneumatic)***

For portable tools, a tool retainer shall be installed on each piece of utilization equipment, which, without such a retainer, may eject the tool. **1910.243(b)(1)**

Hose and hose connections used for conducting compressed air shall be

designed for the pressure and service to which they are subjected.

**1910.243(b)(2)**

### ***Power Transmission Equipment Guarding***

All belts, pulleys, sprockets and chains, flywheels, shafting and shaft projections, gears, and couplings, or other rotating or reciprocating parts, or any portion thereof, within 7 feet (2.1 meters) of the floor or working platform shall be effectively guarded. **1910.219(b)(1), (c)(2)(i) & (f)(3)**

All guards for inclined belts shall conform to the standards for construction of horizontal belts, and shall be arranged in such a manner that a minimum clearance of 7 feet (2.1 meters) is maintained between the belt and floor at any point outside the guard. **1910.219(e)(3)**

Flywheels located so that any part is 7 feet (2.1 meter) or less above the floor or platform shall be guarded with an enclosure of sheet, perforated, or expanded metal or woven wire. **1910.219(b)(1)(i)**

Where both runs of horizontal belts are 7 feet (2.1 meters) or less from the floor or working surface, the guard shall extend at least 15 inches (37.5 centimeters) above the belt or to a standard height except that where both runs of a horizontal belt are 42 inches (1.05 meters) or less from the floor, the belt shall be fully enclosed by guards made of expanded metal, perforated or solid sheet metal, wire mesh on a frame of angle iron, or iron pipe securely fastened to the floor to the frame of the machine. **1910.219(e)(1)(i) & 1910.219(m)(1)(i)**

Gears, sprocket wheels, and chains shall be enclosed unless they are more than 7 feet (2.1 meters) above the floor, or the mesh points are guarded. **1910.219(f)(1) & 1910.219(f)(3)**

Couplings with bolts, nuts, or set screws extending beyond the flange of the coupling shall be guarded by a safety sleeve. **1910.219(i)(2)**

### ***Process Safety Management of Highly Hazardous Chemicals***

Employers shall develop a written plan of action regarding employee participation and shall consult with employees and their representatives on the conduct and development of process hazards analyses and on the development of the other elements of process safety management. **1910.119(c)(1) & (2)**

The employer shall complete a compilation of written process safety information prior to conducting a process hazard analysis. **1910.119(d)**

The employer shall perform a process hazard analysis appropriate to the complexity of the company's processes and shall identify, evaluate, and control the hazards involved in the process. **1910.119(g)(1)**

The employer shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with process safety information. **1910.119(f)(1)**

Each employee presently involved in operating a process and each employee before being involved in operating a newly assigned process shall be

trained in an overview of the process and in the operating procedures specified in paragraph (f). **1910.119(g)(1)**

The employer, when selecting a contractor, shall obtain and evaluate information regarding the contract employer's safety performance and programs. **1910.119(h)(2)(i)**

The contract employer shall assure that each contract employee is trained in the work practices necessary to safely perform his/her job. **1910.119(h)(3)(i)**

The employer shall perform a pre-start up safety review for new facilities and for modified facilities when the modification is significant enough to require a change in the process safety information. **1910.119(i)(1)**

The employer shall establish and implement written procedures to maintain the ongoing integrity of process equipment. **1910.119(j)(2)**

The employer shall establish and implement written procedures to manage changes to process chemicals, technology, equipment, and procedures, and changes to facilities that affect a covered process. **1910.119(i)(1)**

### ***Railings***

A standard railing shall consist of top rail, intermediate rail, and posts, and shall have a vertical height of 42 inches (1.05 meters) from upper surface to top rail and/or platform. **1910.23(e)(1)**

A railing for open-sided floors, platforms, and runways, shall have toeboard whenever, beneath the open sides, persons can pass, there is moving machinery, or there is equipment with which falling materials could cause a hazard. **1910.23(c)(1)**

Railings shall be of such construction that the complete structure shall be capable of withstanding a load of at least 200 pounds (90 kilograms) in any direction on any point on the top rail. **1910.23(e)(3)(iv)**

A stair railing shall be of construction similar to a standard railing, but the vertical height shall be no more than 34 inches (85 centimeters) nor less than 30 inches (75 centimeters) from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread. **1910.23(e)(2)**

### ***Respiratory Protection***

The employer as necessary to protect workers' health shall provide suitable respirators selected on the basis of the hazard to which the worker is exposed. **1910.134(a)(2) & (d)(1)(i)**

Where respirators are required, the employer shall establish and maintain a respiratory protective program. The program shall be regularly evaluated to determine its continued effectiveness. **1910.134(a)(2)**

Written procedures shall be prepared covering the selection and safe use of respirators in dangerous atmospheres encountered in normal operations and emergencies. **1910.134(c)(1) & (d)(3)(i)**

Supervisors and workers shall be properly instructed in the selection, use, and maintenance of respirators. **1910.134(c)(1)(viii)**

Respirators shall be regularly cleaned and disinfected and shall be inspected during the cleaning. Deteriorating parts shall be replaced. Respirators for emergency use shall be inspected at least once a month and after each use. When not in use, respirators shall be stored in a convenient, clean, and sanitary location. **1910.134(h)(1)(3) & (4)**

Surveillance of work area conditions and the degree of employee exposure or stress shall be maintained. **1910.134(g)(2)(i)**

Persons shall not be assigned tasks requiring the use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. Respirator users' medical status shall be reviewed periodically. **1910.134(e)(1)**

After inspection, cleaning and necessary repair, respirators shall be stored to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Respirators should be quickly accessible at all times. Respirators should not be stored in lockers or toolboxes unless they are in carrying cases or cartons. **1910.134(h)(2)(i)**

Respirator users must be properly instructed in the devices' use and maintenance. **1910.134(k)(1)(iii) & (v)**

### ***Right-to-Know***

Notice to employees and their representatives regarding toxic substances.

(1) Every employer shall post a sign in every workplace at the location or locations where notices to employees are normally posted, to inform employees that they have a right to information from their employer regarding the toxic substances found in the workplace, a description of the toxic effects of these substances, and the circumstances under which these effects are produced.

(2) It shall be the responsibility of the employer to obtain information relating to toxic substances from: the manufacturer; the New York State Department of Health; the Federal Environmental Protection Agency's Chemical Substances Information Network; and the Health Hazard Evaluation Program of the National Institute of Occupational Safety and Health.

(3) Employee Education and Training: Every employer shall institute an education and training program for employees routinely exposed to toxic substances. The education and training program shall commence prior to initial assignment and shall be repeated at least annually thereafter. **12NYCRR Part 820**

***Ropes*** (See Chains, Cables, Ropes, Hooks)

### ***Saws, Portable Circular (See Woodworking Machinery)***

All portable, power-driven circular saws (except those used for cutting meat) having a blade diameter greater than 2 inches (5 centimeters) shall be equipped with guards above and below the base plate or shoe. The upper guards shall cover the saw to the depth of the teeth, except for the minimum arc

required to permit the base plate to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall automatically return to the covering position. **1910.243(a)(1)**

### **Scaffolds**

All scaffolds and their supports shall be capable of supporting the load they are designed to carry with a safety factor of at least 4. **1910.28(a)(4)**

All planking shall be Scaffold Grade, as recognized by grading rules for the species of wood used. The maximum permissible spans for 2-inch (5 centimeters) x 9-inch (22.5 centimeters) or wider planks are shown in the following table:

<i>Maximum intended load</i>	<i>Maximum permissible span using full thickness undressed lumber</i>	<i>Maximum permissible span using nominal thickness lumber</i>
25 lbs (11.3 kg) psf	10 ft (3 meters)	8 ft (2.4 meters)
50 lbs (22.7 kg) psf	8 ft (2.4 meters)	6 ft (1.8 meters)
75 lbs (34.0 kg) psf	6 ft (1.8 meters)	Not Applicable

The maximum permissible span for 1 1/4-inch (3.12 centimeters) x 9-inch (22.5 centimeters) or wider plank for full thickness is 4 feet (1.2 meters), with medium loading of 50 pounds (22.5 kilograms) per square foot. **1910.28(a)(9)**

Scaffold planks shall extend over their end supports not less than 6 inches (15 centimeters) nor more than 18 inches (45 centimeters). **1910.28(a)(13)**

Scaffold planking shall be overlapped a minimum of 12 inches (30 centimeters) or secured from movement. **1910.28(a)(11)**

### **Skylights**

Every skylight floor opening and hole shall be guarded by a standard skylight screen or a fixed standard railing on all exposed sides. **1910.23(4)**

### **Spray-Finishing Operations**

In conventional dry-type spray booths, overspray dry filters or filter rolls, if installed, shall conform to the following: The spraying operations, except electrostatic spraying, must ensure an average air velocity over the open face of the booth of not less than 100 feet (30 meters) per minute. Electrostatic spraying operations may be conducted with an air velocity of not less than 60 feet (18 meters) per minute, depending on the volume of the finishing material being applied and its flammability and explosion characteristics. Visible gauges, or audible alarm or pressure-activated devices shall be installed to

indicate or ensure that the required air velocity is maintained. Filter pads shall be inspected after each period of use and clogged filter pads discarded and replaced. Filter pads shall be inspected to ensure proper replacement of filter media. **1910.107(b)(5)(i)**

Spray booths shall be so installed that all portions are readily accessible for cleaning. **1910.107(b)(9)**

A clear space of not less than 3 feet (0.9 meters) on all sides shall be kept from storage or combustible construction. **1910.107(b)(9)**

Space within the spray booth on the downstream and upstream sides of filters shall be protected with approved automatic sprinklers.

**1910.107(b)(5)(iv)**

There shall be no open flame or spark producing equipment in any spraying area nor within 20 feet (6 meters) thereof, unless separated by a partition. **1910.107(c)(2)**

Electrical wiring and equipment not subject to deposits of combustible residues but located in a spraying area as herein defined shall be explosion proof. **1910.107(c)(6)**

The quantity of flammable or combustible liquids kept in the vicinity of spraying operations shall be the minimum required for operations and should ordinarily not exceed a supply for 1 day or one shift. **1910.107(e)(2)**

Bulk storage of portable containers of flammable or combustible liquids shall be in a separate, constructed building detached from other important buildings or cut off in a standard manner. **1910.107(e)(2)**

Whenever flammable or combustible liquids are transferred from one container to another, both containers shall be effectively bonded and grounded to prevent discharge sparks of static electricity. **1910.107(e)(9)**

All spraying areas shall be kept as free from the accumulation combustible residue deposits as practical, with cleaning conducted daily if necessary. Scrapers, spuds, or other such tools used for cleaning purposes shall be of nonspark material. **1910.107(g)(2)**

Residue scrapings and debris contaminated with residue shall be immediately removed from the premises. **1910.107(g)(3)**

“No smoking” signs in large letters on contrasting color background shall be conspicuously posted in all spraying areas and paint storage rooms.

**1910.107(g)(7)**

### ***Stairs, Fixed Industrial***

Every flight of stairs having four or more risers shall be provided with a standard railing on all open sides. Handrails shall be provided on at least one side of closed stairways, preferable on the right side descending. **1910.23(d)(1) & 24(h)**

Stairs shall be constructed so the rise height and tread width is uniform throughout. **1910.24(e)**

Fixed stairways shall have a minimum width of 22 inches (55 centimeters).

### **1910.24(d)**

Fixed stairways shall be provided for access from one structure to another where operations necessitate regular travel between levels, and for access to operating platforms at any equipment which requires attention routinely during operations. Fixed stairs shall also be provided where access to elevations is daily or at each shift where such work may expose employees to harmful substances or for which purposes the carrying of tools or equipment by hand is normally required. Spiral stairways shall not be permitted except for special limited usage and secondary access situations where it is not practical to provide a conventional stairway. **1910.24(b)**

### ***Storage***

All stored materials stacked in tiers shall be stacked, blocked, interlocked, and limited in height so that they are secure against sliding or collapse.

#### **1910.176(b)**

Storage areas shall be kept free from accumulation of materials that constitute hazards from tripping, fire, explosion, or pest harborage. Vegetation control will be exercised when necessary. **1910.176(c)**

Where mechanical handling equipment is used, sufficient safe clearance shall be allowed for aisles, at loading docks, through doorways, and whenever turns or passage must be made. **1910.176(a)**

### ***Tanks, Open-Surface***

Where ventilation is used to control potential exposure to employees, it shall be adequate to reduce the concentration of the air contaminant to the degree that a hazard to employees does not exist. **1910.94(d)(3)**

Whenever there is a danger of splashing, the employees shall be required to wear either tight-fitting chemical goggles or an effective face shield.

#### **1910.94(d)(9)(v)**

There shall be a supply of clean cold water near each tank containing liquid that may be harmful to the skin if splashed upon the worker's body. The water pipe shall be provided with a quick opening valve and at least 48 inches (1.2 meters) of hose not smaller than 3/4 inch (1.8 centimeters). Alternatively, deluge shower and eye flushes shall be provided. **1910.94(d)(9)(vii)**

All employees working in and around open-surface tank operations must be instructed as to the hazards of their respective jobs, in personal protection, and first aid procedures applicable to these hazards. **1910.94(d)(9)(i)**

### ***Toeboards***

Railings protecting floor openings, platforms, and scaffolds shall be equipped with toeboards whenever persons can pass beneath the open side, wherever there is moving machinery, or wherever there is equipment with which falling material could cause a hazard. **1910.23(c)(1)**

A standard toeboard shall be at least 4 inches (10 centimeters) in height

and may be of any substantial material, either solid or open, with openings not to exceed 1 inch (2.5 centimeters) in greatest dimension. **1910.23(e)(4)**

### ***Toilets***

Water closets shall be provided according to the following: 1-15 persons, one facility; 16-35 persons, two facilities; 36-55 persons, three facilities; 56-80 persons, four facilities; 8 -110 persons, five facilities; 111-150 persons, six facilities; over 150 persons, one for each additional 40 persons. Where toilet rooms will be occupied by no more than one person at a time, can be locked from the inside, separate rooms for each sex need not be provided.

#### **1910.141(c)(1)(i)**

Each water closet shall occupy a separate compartment with a door and walls or partitions between fixtures sufficiently high to ensure privacy.

#### **1910.141(c)(2)**

Wash basins (lavatories) shall be provided in every place of employment.

#### **1910.141(d)**

Lavatories shall have hot, cold, or tepid running water, hand soap or equivalent, and hand towels, blowers, or equivalent. **1910.141(d)(2)(ii) & (iv)**

The above requirements do not apply to mobile crews or normally unattended locations, as long as employees working at these locations have transportation immediately available to nearby toilet facilities.

#### **1910.141(c)(1)(ii)**

### ***Welding-General (See Welding in Confined Spaces)***

Arc welding cables with damaged insulation or exposed bare conductors shall be replaced. **1910.254(d)(9)(iii)**

Refer to 29 CFR 1910.252(c)(5) through (10) for special considerations when welding operations require fluxes, coverings, coatings, or alloys involving fluorine compounds zinc, lead, beryllium, cadmium, or mercury.

Mechanical ventilation shall be provided when welding or cutting:

- Where there is less than 10,000 cubic feet (300 cubic meters) per welder; and
- Where the overhead height is less than 16 feet (4.8 meters).

#### **1910.252(c)(2)(i)(A) & (B)**

Proper shielding and eye protection to prevent exposure of personnel from welding hazards shall be provided. **1910.252(b)(2)(i)(B) through (D) & (F) through (H)**

Workers or other persons adjacent to the welding areas shall be protected from the welding rays by non-combustible or flameproof screens or shields, or shall be required to wear appropriate goggles. The screens shall be so arranged that no serious restriction of ventilation exists. **1910.252(b)(2)(iii) & 1910(c)(1)(iii)**

Proper precautions (isolating welding and cutting, removing fire hazards and combustibles, and providing a fire watch) for fire prevention shall be taken in areas where welding or other “hot work” is being done. **1910.252(a)**

## ***Welding in Confined Spaces***

All welding and cutting operations that are performed in confined spaces (such as a tank, boiler, or a pressure vessel) shall be adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency.

### **1910.252(c)(4)**

In such circumstances where it is impossible to provide such ventilation, airline respirators approved by the National Institute for Occupational Safety and Health (NIOSH) for this purpose shall be used. **1910.252(c)(4)(ii)**

In areas immediately hazardous to life, airline respirators with escape air bottles or self-contained breathing equipment shall be used. The breathing equipment shall be approved by NIOSH. **1910.252(c)(4)(iii)**

Where welding operations are performed in confined spaces and where welders and helpers are provided with airline respirators self-contained breathing equipment, a worker shall be stationed on the outside of such confined spaces to ensure the safety of those working within.

### **1910.252(c)(4)(iv)**

Oxygen shall never be used for ventilation. **1910.252(c)(4)(v)**

## ***Woodworking Machinery***

All woodworking machinery – such as table saws, swing saws, radial saws, band saws, jointers, tenoning machines, boring and mortising machines, shapers, planers, lathes, sanders, veneer cutters, and other miscellaneous woodworking machinery – shall be enclosed or guarded, except that part of the blade doing the actual cutting, to protect the operator and other employees from hazards inherent to the operation. **1910.213(c) through (r)**

Power control devices shall be provided on each machine to make it possible for the operator to cut off the power to the machine without leaving his/her position at the point of operation. **1910.213(b)(1)**

Power controls and operating controls should be located within easy reach of the operator while at his/her regular work location, making it unnecessary for the operator to reach over the cutter to make adjustments. This does not apply to constant pressure controls used only for setup purposes.

### **1910.213(b)(3) & (4)**

Re-starts. In operations where injury to the operator might result if motors were to restart after power failures, provision shall be made to prevent machines from automatically restarting upon restoration of power.

### **1910.213(b)(3)**

Band saw blades shall be enclosed or guarded except for the working portion of the blade between the bottom of the guide rolls and the table. Band saw wheels shall be fully encased. The outside periphery of the enclosure shall be solid. The front and back shall be either solid or wire mesh or perforated metal. **1910.213(i)(1)**

Circular table saws shall have a hood over the portion of the saw above the table mounted so that the hood will automatically adjust itself to the thickness

of and remain in contact with the material being cut. **1910.213(c), (d)(1) & (e)(1)**

Circular table saws shall have a spreader aligned with the blade, spaced no more than 3/8 inch (8 millimeters) behind the largest blade mounted in the saw. The provision of a spreader in connection with grooving, deeding, or rabbeting is not required. **1910.213(c)(2), (d)(2) & (e)(2)**

Circular table saws used for ripping shall have non-kickback fingers or dogs. **1910.213(c)(3) & (f)(2)**

Inverted swing or sliding cut-off saws shall be provided with a hood that will cover the part of the saw that protrudes above the top of the table or material being cut. **1910.213(g)(4)**

Radial saws shall have an upper guard that completely encloses the upper half of the saw blade. A device that will automatically adjust to the thickness of and remain in contact with the material being cut shall guard the sides of the lower exposed portion of the blade. **1910.213(h)(1)**

Radial saws used for ripping shall have non-kickback fingers or dogs. **1910.213(h)(2)**

Radial saws shall have an adjustable stop to prevent the forward travel of the blade beyond the position necessary to complete the cut in repetitive operations. **1910.213(h)(3)**

Radial saws shall be installed so that the cutting head will return to the starting position when released by the operator. **1910.213(h)(4)**

Ripsaws shall have a spreader aligned with the blade and shall be no thinner than the blade. The provision of a spreader in connection with grooving, deeding, or rabbeting is not required. **1910.213(c)(3) & (f)(3)(2)**

Ripsaws shall have non-kickback fingers or dogs. **1910.213(c)(3) & (f)(3)(23)**

Self-feed circular saws' feed rolls and blades shall be protected by a hood or guard to prevent the hand of the operator from coming into contact with the in-running rolls at any point. **1910.213(f)(1)**

Swing or sliding cut-off saws shall be provided with a hood that will completely enclose the upper half of the saw. **1910.213(g)(1)**

Swing or sliding cut-off saws shall be provided with limit stops to prevent the saws from extending beyond the front or back edges of the table. **1910.213(g)(3)**

Swing or sliding cut-off saws shall be provided with an effective device to return the saw automatically to the back of the table when released at any point of its travel. **1910.213(g)(2)**

### ***Workplace Violence*** (See General Duty Clause)

Violence is a potential hazard in all workplaces, and an everyday hazard in some occupations. The source of violence can be strangers, clients, significant others of co-workers, or co-workers. Threats or other precursors to violence

must be reported and addressed. Physical security of the office should be evaluated, with reasonable precautions taken, such as lighted parking areas, secured entrances, and other measures as appropriate. Preplanning for violence prevention and training should take place.

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