

The background of the cover is a photograph of a mulching operation. A large pile of wood chips and mulch is in the foreground. In the middle ground, a yellow mulcher machine is visible, with its discharge chute directed towards the pile. The background shows a line of trees and a clear sky.

A Practical **SAFETY MANUAL**

For the Composting and Mulching Industry

Industry Standards with Training Requirements
How to Comply with Standards and Pass Inspections
How to Report Injuries and Illness
When and How to Conduct Accident Investigations
Employee Manual in English and Spanish



The University of Tennessee
CENTER FOR INDUSTRIAL SERVICES

ACKNOWLEDGEMENTS

This manual was produced under the terms of the “Tennessee Wood and Waste Resource Project” (Contract Number: ID-97-06314-00) between the Department of Community Assistance (formerly: Department of Solid Waste Assistance), Tennessee Department of Environment and Conservation and The University of Tennessee Center for Industrial Services (CIS). The project was part of a “Jobs Through Recycling” initiative funded by the United States Environmental Protection Agency. Mr. Bryan Lane, CIS Occupational Safety and Health Consultant, researched and produced this manual.

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For the Composting and Mulching Industry

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OBJECTIVE

The objective of this manual is to help you establish a safety program that is compliant with regulations and effective in reducing or eliminating safety hazards.

INTRODUCTION

Safety is tied to productivity is tied to quality...

Safe working conditions allow workers to concentrate on their jobs and do quality work; allow you to save money (by not having high workers compensation premiums, not working overtime to cover for workers who are out, etc.); encourage good workers to come to and stay at work; and improve morale of the workers. In other words, safety is just good business.

An effective safety program saves you money for the reasons listed above. Injuries cost money. The employee suffers pain and lost wages, while costs to the employer include workers compensation premiums, lost productivity and lower quality. Accidents may also damage equipment. You can make your business safer and more profitable by knowing what hazards to look for, what you are required to do by the Occupational Safety and Health Administration (OSHA), and how to work effectively as a team.

The manual consists of two sections: one for the employer and one for the employee.

The employer section begins with this introductory section. Next is a “heads up” section that will warn you about standards that are typically cited for your industry when Tennessee OSHA (TOSHA) does an inspection, and offers suggestions to help you comply. Finally the “What You Can Do” section covers training and written program requirements from the OSHA standards and injury and illness reporting and accident investigations.

You know about the specific requirements of your industry. We do not attempt to reinvent the wheel by going over information you already know. However, OSHA records show that many areas are often overlooked by the composting and mulching industry. That’s what we’re addressing here. So, while this manual may appear “generic,” the intent is to point out commonly overlooked standards to keep you out of trouble.

“HEADS UP”

TOSHA is the Tennessee state program for Federal OSHA. (OSHA stands for Occupational Safety and Health Administration.) If a TOSHA compliance officer were to visit your facility, he or she would be looking for unsafe and/or non-compliant situations. If a representative does visit your site, treat him or her with respect and courtesy. You can choose to be difficult, but that course of action will probably come back to haunt you. TOSHA wants workplaces to be safe.

TOSHA makes compliance visits based on the following priorities:

- (1) Imminent danger**
- (2) Catastrophes and fatal accidents**
- (3) Employee complaint**
- (4) Programmed high-hazard inspection**
- (5) Follow-up inspection**

(1) Imminent danger – According to the U.S. Department of Labor, OSHA Office of Training and Education, “An imminent danger is any condition where there is reasonable certainty that a danger exists that can be expected to cause death or serious physical harm immediately, or before the danger can be eliminated through normal enforcement procedures.” Employees contact TOSHA to report possible “imminent danger” situations.

(2) Catastrophes and fatal accidents – Catastrophes are accidents that result in the hospitalization of three or more employees. You know what a death is. Catastrophes and fatalities must be reported to TOSHA by you, the employer, within eight hours of the incident.

(3) Employee complaints – Employees have the right to contact TOSHA and complain of alleged violations of OSHA standards or unhealthy working conditions. This category differs from imminent danger in that not all complaints will involve imminent danger situations.

(4) Programmed high-hazard inspections – Industries are selected for inspection based on deaths, injury and incidence rates (see the section of this manual detailing incidence rates for more information on incidence rates), and employee exposure to toxic substances. If you are in an industry where there are lots of injuries, you may get a visit from TOSHA.

(5) Follow-up inspections – These are done after the initial visit to make sure you have corrected problems and violations previously noted. If you are told to correct problems and you do not, and the follow-up visit uncovers this, TOSHA can issue a “Notification of Failure to Abate.” This can lead to additional daily penalties for as long as the violation goes uncorrected.

If a TOSHA/OSHA inspector shows up, first ask why he or she is there. Go with the inspector through the facility, and take notes as you go. The TOSHA/OSHA representative will be looking for unsafe conditions and technical violations of safety regulations.

The standards TOSHA/OSHA generally uses to judge a company's safety compliance are known as the General Industry Standards. The standards are part of a larger body called the Code of Federal Regulations (CFR).

The book containing the general industry standards is known as 29 CFR Part 1910. In Tennessee, composting is considered an agricultural business, although aspects of the general industry standards apply. The book of standards for agriculture is 29 CFR Part 1928. And regardless of how composting is technically listed for regulatory purposes, you need to make your workplace as safe as possible. You are not absolved from safety responsibilities due to your particular classification in a particular area of the country. Therefore, this manual will address both agricultural and general industry standards.

29 CFR Part 1928 is a short standard. The sections cover: roll-over protective structures (ROPS); safety for agricultural equipment; and general environmental controls. Per 1928, the following general industry standards apply to agricultural sites also:

- (1) Temporary labor camps (1910.142)
- (2) Storage and handling of an hydrous ammonia (1910.111(a) and (b))
- (3) Logging operations (1910.266)
- (4) Slow-moving vehicles (1910.145)
- (5) Hazard communication (1910.1200)
- (6) Cadmium (1910.1027)
- (7) Retention of DOT markings, placards, and labels. (1910.1201)

Highlights of the Agricultural Standard are discussed later in this manual.

Within the 29 CFR Part 1910 are sections that deal with particular topics – 29 CFR Part 1910.1200, for instance, addresses the hazard communication *standard*.

So, if OSHA/TOSHA visits and finds a situation that is out of compliance, they will cite in their report a *standard* number that identifies which *standard* was violated. You have the right to contest their findings, but once a final determination is made you must correct or “abate” the non-compliant situations.

Industries are broken down into industrial groups. These groups are assigned a Standard Industrial Classification (SIC) code. “Compost” falls under SIC code 2875 – *Fertilizers, mixing only*.

For SIC 2875, the top five most frequently cited standards for the time period January, 2000 through July 2002 were: respiratory protection (1910.134); electrical wiring

(1910.305); hazard communication (1910.1200); guarding floor and wall openings and holes (1910.23); and mechanical power transmission apparatus (1910.219).

The top five in dollars fined were: lockout/tagout (1910.147); guarding floor and wall openings and holes (1910.23); machine guarding (1910.212); walking working surfaces general requirements (1910.22); and (tie) means of egress (1910.36) and confined spaces (1910.146).

Let's look in more detail at the standards listed above, particularly at the sub-sections of those standards that get companies in your industry group in trouble.

OSHA Standards

Composting sites are not typical industrial settings. However, OSHA standards still apply. Many of the machines used need to have machine guards, lockout/tagout programs, and so forth. Many of your employees need to wear Personal Protective Equipment (PPE). Therefore, you need to know about those requirements.

Screeners, both Trommels and horizontal, have moving parts that need to be guarded. The same is true of turners, tractors, tub grinders, wood hogs, sorters, mixers, and shredders. Many of these machines have raised work platforms, so railings and steps are important to worker safety. Tractors need to have ROPS (Roll Over Protection Structures).

Tub grinder tubs are confined spaces. If you compost inside a building, that may also be a confined space due to the high ammonia that could lead to physical harm or death if you were exposed too long.

PPE requirements could include hard hats, gloves, hearing protection, eyewear and respiratory protection. Employees may not realize that standing on a pile of composting material that includes biosolids, i.e., EPA Class B biosolids, is dangerous to them. You, the employer, are responsible for determining the safety hazards of your worksite.

This part of the manual details sections of the OSHA standards cited OSHA when inspects companies in SIC 2875. Not every one of these will apply to your site. And, there may be other standards not covered here that would apply. You need to get a copy of the OSHA standards (29 CFR Part 1910 and 29 CFR Part 1928) to familiarize yourself with all the requirements. Here we are simply looking at those most often cited.

The actual wording of the section of the standard is included in quotation marks ("example"). The major standard cited is shown (i.e. 1910.1200 The Hazard Communication Standard) followed by particular sections within the standard that usually cause the most problems. Each standard contains other sections.

1910.134 – Respiratory Protection

1910.134(c)(01) – Written Program “In any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish and implement a written respiratory protection program with worksite-specific procedures. The program shall be updated as necessary to reflect those changes in the workplace conditions that affect respirator use. The employer shall include in the program the following provisions of this section, as applicable:

- (i) Procedures for selecting respirators for use in the workplace;
- (ii) Medical evaluations of employees required to use respirators;
- (iii) Fit testing procedures for tight-fitting respirators;
- (iv) Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations;
- (v) Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators;
- (vi) Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators;
- (vii) Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations;
- (viii) Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance; and
- (ix) Procedures for regularly evaluating the effectiveness of the program.

1910.134(e)(01) – Medical evaluation “The employer shall provide a medical evaluation to determine the employee’s ability to use a respirator, before the employee is fit tested or required to use the respirator. The employer may discontinue an employee’s medical evaluations when the employee is no longer required to use a respirator.”

1910.134(f)(01) – Fit test “The employer shall ensure that employees using a tight-fitting facepiece respirator pass an appropriate qualitative fit test (QLFT) or quantitative fit test (QNFT) as states in this paragraph.”

Also, if you have employees who voluntarily use “dust masks” (or face-filtering pieces), you must give them a copy of Appendix D of the standard (1910.134). If employees wear other respirators voluntarily, you must comply with the appropriate sections of the standard, including appropriate sections of the written program.

1910.305 – Wiring methods, components, and equipment for general use.

1910.305(b)(1) - Make sure outlets, etc. have covers. “Conductors entering boxes, cabinets, or fittings shall also be protected from abrasion, and openings through which

conductors enter shall be effectively closed. Unused openings in cabinets, boxes, and fittings shall be effectively closed.”

1910.305(b)(2) Covers and canopies. “All pull boxes, junction boxes, and fittings shall be provided with covers approved for the purpose. If metal covers are used they shall be grounded. In completed installations, each outlet box shall have a cover, faceplate, or fixture canopy. Covers of outlet boxes having holes through which flexible cord pendants shall pass shall be provided with bushings designed for the purpose or shall have smooth, well-rounded surfaces on which the cords may bear.”

1910.305(g)(01)(iii) – Misuse of flexible cords. “Unless specifically permitted in paragraphs (g)(1)(i) of this section, flexible cords and cables may not be used:

- (A) As a substitute for the fixed wiring of a structure;
- (B) Where run through holes in walls, ceilings, or floors;
- (C) Where run through doorways, windows, or similar openings;
- (D) Where attached to building surfaces or
- (E) Where concealed behind building walls, ceilings or floors.”

Also be on the lookout for tears, exposed wiring, taped up sections, etc.

1910.305(g)(02)(ii) – Flexible cords in continuous lengths. “Flexible cords shall be used only in continuous lengths without splice or tap. Hard service flexible cords, No. 12 or larger may be repaired if spliced so that the splice retains the insulation, outer sheath properties, and usage characteristics of the cord being spliced.”

1910.305(g)(02)(iii) – Strain relief for flexible cords. “Flexible cords shall be connected to devices and fittings so that strain relief is provided which will prevent pull from being directly transmitted to joints or terminal screws.”

1910.1200 Hazard Communication

1910.1200 – Hazard communication standard. The lack of a written hazard communication program, no annual employee retraining (in Tennessee), and unlabeled containers of hazardous chemicals are the most frequently cited problems. Other concerns are inadequate training and missing or not readily accessible Material Safety Data Sheets (MSDS).

1910.1200(e)(01) Written hazard communication program. “Employers shall develop, implement, and maintain at each workplace, a written hazard communication program which at least describes how the criteria specified in paragraphs (f)(g), and (h) of this section for labels and other forms of warning, material safety data sheets, and employee information and training will be met, and which also includes the following:

- (i) A list of the hazardous chemicals known to be present using an identity that is referenced on the appropriate material safety data sheet (the list may be compiled for the workplace as a whole or for individual work areas); and

- (ii) The methods the employer will use to inform employees of the hazards of non-routine tasks (for example, the cleaning of reactor vessels), and the hazards associated with chemicals contained in unlabeled pipes in their work areas.”

The “What To Do” booklet, compiled by TOSHA, walks you through, step by step, how to put together a hazard communication program. A copy of the booklet is included in this manual at appendix A

1910.1200(h)(01) – Hazard communication training. “Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new physical or health hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g. flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and material safety data sheets.”

In Tennessee, make sure you include what are known as “the 7 questions.” TOSHA will evaluate the effectiveness of your training program on the basis of *the ability of your employees to verbally recall the answers* to these questions:

1. What is this training about?
2. What hazardous chemical(s) are you exposed to or may be exposed to during normal use or in a foreseeable emergency?
3. Where is this chemical present?
4. What are the short and long term effects on the body?
5. How can you detect if you are overexposed to the chemical(s)?
6. How can you protect yourself from overexposure?
7. Have the written program and MSDSs been explained to you?

Please make sure you include these questions, and their answers, in your hazard communication training program. We will discuss these in more detail in the training section of this manual.

1910.1200(f)(5)(i) and (ii) - Label information. “Except as provided in paragraphs (f)(6) and (f)(7) of this section, the employer shall ensure that each container of hazardous chemicals in the workplace is labeled or marked with the following information:

- (i) Identity of the hazardous chemical(s) contained therein and,
- (ii) Appropriate hazard warnings, or alternatively, words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical.”

The “appropriate hazard warning” must include target organ effects (i.e. “causes lung damage.”) The MSDS for the chemical has that information.

1910.23 – Guarding floor and wall openings and holes.

1910.23(a)(2) – Ladderway openings. “Every ladderway floor opening or platform shall be guarded by a standard railing with standard toeboard on all exposed sides (except at entrance to opening), with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.”

1910.23(c)(1) – Open-sided floors. “Every open-sided floor and platform 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing (or the equivalent as specified in paragraph (e)(3) of this section) on all sides except where there is an entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a toeboard wherever, beneath the open sides,

- (i) Persons can pass
- (ii) There is moving machinery, or
- (iii) There is equipment with which falling materials could create a hazard.”

1910.23(d)(1) – Stairway railings and guards. “Every flight of stairs having four or more risers shall be equipped with standard stair railings as specified in paragraphs (d)(1)(i) through (v) of this section, the width of the stair to be measured clear of all obstructions except handrails:

- (i) On stairways less than 44 inches wide having both sides enclosed, at least one handrail, preferably on the right side descending.
- (ii) On stairways less than 44 inches wide having one side open, at least one stair railing on open side.
- (iii) On stairways less than 44 inches wide having both sides open, one stair railing on each side.
- (iv) On stairways more than 44 inches wide but less than 88 inches wide, one handrail on each enclosed side and one stair railing on each open side.
- (v) On stairways 88 or more inches wide, one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.”

1910.23(e)(3)(v) – Other types states, “Other types, sizes, and arrangements of railing construction are acceptable provided they meet the following conditions:

- (a) A smooth-surfaced top rail at a height above floor, platform, runway, or ramp level of 42 inches nominal;
- (b) A strength to withstand at least the minimum requirement of 200 pounds top rail pressure;
- (c) Protection between top rail and floor, platform, runway, ramp, or stair treads equivalent at least to that afforded by intermediate rail.”

Overhead areas need to be guarded by a standard railing as defined above.

1910.219 – Mechanical power-transmission apparatus.

1910.219(d)(01) – Guard pulleys that are less than 7 feet off the floor. “Pulleys, any parts of which are seven (7) feet or less from the floor or working platform, shall be guarded in accordance with the standards specified in paragraphs (m) and (o) of this section. Pulleys serving as balance wheels (e.g. punch presses) on which the pulley is more than six feet six inches (6 ft. 6 in.) from the floor or platform may be guarded with a disk covering the spokes.”

1910.219(e)(3)(i) – Enclose vertical and inclined belts. “Vertical and inclined belts shall be enclosed by a guard conforming to standards in paragraphs (m) and (o) of this section.” (NOTE: Section (m) gives general requirements for standard guards, e.g., use expanded metal, perforated or solid sheet metal, or wire mesh, on a frame of angle iron or iron pipe attached to floor or frame of machine. And metal is to be free from burrs and sharp edges. Section (o) details approved materials including bracing requirements, wood guards information, guards for horizontal overhead belts, rope and chain drives, and so forth.)

1910.219(f)(3) – Guard chains and sprockets that are less than 7 feet off the floor.

“All sprockets wheels and chains shall be enclosed unless they are more than seven (7) feet above the floor or platform. Where the drive extends over the machine or working areas, protection against falling shall be provided. This subparagraph does not apply to manually operated sprockets.”

If there are pulleys on your machines, and they are located within 7 feet of the floor or working surface, they must be guarded. Pulleys have “nip points” – areas where rotating parts can pinch or pull in fingers, arms, hair, etc. Keep the nip points guarded.

1910.147 Control of hazardous energy (lockout/tagout)

1910.147(c)(01) – Energy control program. “The employer shall establish a program consisting of energy control procedures, employee training and periodic inspections to ensure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, startup or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source and rendered inoperative.”

1910.147(c)(04)(i) - Energy control procedure. “Procedures shall be developed, documented and utilized for the control of potentially hazardous energy when employees are engaged in the activities covered by this section.”

NOTE: All of these standards are important, but *make sure that employees understand lockout/tagout* and that you have a program and adhere to it. Not having an effective lockout/tagout program can kill somebody. Lockout/tagout is especially important where employees have to work around dangerous cutting, grinding, shredding, and mixing

machines (as you find at composting sites.) PLEASE make sure employees know not to work on machines when the machine is not locked out and there is a chance of unexpected energization.

1910.147(c)(04)(ii) - Specific procedures “The procedures shall clearly and specifically outline the scope, purpose, authorization, rules, and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance including, but not limited to, the following:

- (A) A specific statement of the intended use of the procedure;
- (B) Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy;
- (C) Specific procedural steps for the placement, removal and transfer of lockout devices or tagout devices and the responsibility for them; and
- (D) Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.”

1910.147(c)(07)(i) – Training “The employer shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following:

- (A) Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- (B) Each affected employee shall be instructed in the purpose and use of the energy control procedure.
- (C) All other employees whose work operations are or may be in an area where the energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.”

1910.147(d)(2) – Machine or equipment shutdown. “The machine or equipment shall be turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.”

1910.212 – Machine guarding - general requirements for all machines

1910.212(a)(1) Guard potential problem areas on machines. “One or more methods shall be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips and sparks.”

Nip points are those areas where fingers or hands can get pinched or rolled in or smashed; for instance, where two rotating shafts come together or where there is a rotating part and a fixed part. Examples of nip points are where chains and sprockets meet, where pulleys and belts meet, and where gears mesh.

PLEASE make sure employees do not operate machines with guards removed.

You need to guard machines (1) at the point of operation, which is where “cutting, shaping, boring, or forming is accomplished upon the stock” (OSHA 29 CFR Part 1910.211(1)); (2) where the power transmission apparatus is; and (3) where there are other moving parts.

Check for cracks; for loose parts on the frame of the machine; the cleanliness of the motor; broken gear teeth; or excessive noise; air leaks; and lighting levels. (If employees can’t see the problems how will they know they exist?)

For more detailed information about machine guarding, order a copy of “Concepts and Techniques of Machine Guarding,” OSHA 3067. You can order this from TOSHA or OSHA, or go to the OSHA homepage (www.osha.gov) and look it up there. OSHA’s homepage has terrific information.

Do not remove factory-installed guards that comes with a machine. If you do remove a guard for maintenance or repair, be sure to replace it when the job is done. If you need to construct a guard to protect employees from a dangerous part of the machine, then do it. Machine guards often are taken for granted or removed and forgotten altogether. Even compressors have pulleys and nip points and they need to be guarded also.

1910.212(a)(2) states, “Guards shall be affixed to the machine where possible and secured elsewhere if for any reason attachment to the machine is not possible. The guard shall be such that it does not offer an accident hazard in itself.” In other words, do not create another hazard with the guard you do use.

1910.212(a)(03)(ii) – Guard point of operation. “The point of operation of machines whose operation exposes an employee to injury, shall be guarded. The guarding device shall be in conformity with any appropriate standards therefor, or, in the absence of applicable specific standards, shall be so designed and constructed as to prevent the operator from having any part of his body in the danger zone during the operating cycle.”

1910.212(a)(5) – Exposure of fan blades. “When the periphery of the blades of a fan is less than seven (7) feet above the floor or working level, the blades shall be guarded. The guard shall have openings no larger than one half (1/2) inch.”

Many people use fans to keep their work area cool. Check your fans – often the wire strands on the housing are bent from being struck or knocked over. If you have the old box-type fans, be very careful because the plastic housing is easily broken and holes the size of a fist are not uncommon.

1910.212(b) Secure machines such as drill presses. “Machines designed for a fixed location shall be securely anchored to prevent walking or moving.”

Although drill presses have bolt holes in the base, often they are not secured to the floor. Secure them so they can't be knocked or tipped over.

1910.22 Walking working surfaces general requirements

1910.22(a)(01) - Housekeeping. “All places of employment, passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary fashion.”

Do not allow trash to accumulate as this creates many hazards – fire, health, tripping, a gathering place for rodents and so forth.

1910.22(a)(2) Keep floors dry. “The floor of every workroom shall be maintained in a clean and, so far as possible, a dry condition. Where wet processes are used, drainage shall be maintained, and false floors, platforms, mats, or other dry standing places should be provided where practicable.”

1910.22(b)(1) Keep aiseways clear. “Where mechanical handling equipment is used, sufficient safe clearances shall be allowed for aisles, at loading docks, through doorways and wherever turns or passage must be made. Aisles and passageways shall be kept clear and in good repairs, with no obstruction across or in aisles that could create a hazard.”

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

1910.22(d)(01) – Load rating capacity. “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 which 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.”

Interior buildings and structures that house people and/or equipment and that you use the top of for storage must show the load capacity rating of the roof of the structure (so you know how much you can store.) The rating is to be shown in pounds per square foot and must be posted so people can see it.

1910.36 Means of egress

1910.36(b)(4) Don't lock exit doors. “In every building or structure exits shall be so arranged and maintained as to provide free and unobstructed egress from all parts of the building or structure at all times when it is occupied. No lock or fastening to prevent free escape from the inside of any building shall be installed except in mental, penal, or corrective institutions where supervisory personnel is continually on duty and effective provisions are made to remove occupants in case of fire or other emergency.”

1910.36(b)(6) “In every building or structure equipped with artificial illumination, adequate and reliable illumination shall be provided for all exit facilities.”

1910.146 Permit-required confined spaces

1910.146(b) *Confined space* means a space that:

- (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits, are spaces that may have limited means of entry); and
- (3) Is not designated for continuous employee occupancy.

1910.146(c)(01) – General requirements. “The employer shall evaluate the workplace to determine if any spaces are permit-required confined spaces.”

1910.146(c)(02). “If the workplace contains permit spaces, the employer shall inform exposed employees by posting danger signs or by any other equally effective means, of the existence and location of and the danger posed by the spaces.

NOTE: A sign reading “DANGER – PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER” or using other similar language would satisfy the requirement for a sign.”

1910.146(c)(04). “If the employer decides that its employees will enter permit spaces, the employer shall develop and implement a written permit space program that complies with this section. The written program shall be available for inspection by employees and their authorized representatives.”

Other OSHA standards

Here are some additional OSHA standard violations that are often cited. Please do not overlook these. The ultimate goal is a safer workplace.

General Duty Clause

Section 5 of the OSH Act states, “ (a) Each employer - (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm to his employees; (2) shall comply with occupational safety and health standards promulgated under this Act. (b) Each employee shall comply with occupational safety and health standards and all rules, regulations and orders issued pursuant to this Act which are applicable to his own actions and conduct.”

This is one reason (the general duty clause) why self-assessments are so important. You need to identify and correct safety hazards before someone gets hurt.

300301 - OSHA 200 log not maintained. You are required to keep track of all lost time injuries and illnesses. (The differences between injuries and illnesses are discussed in the “How To” section.) This log must be maintained and then posted for the month of February. Yes, you are required to post this only for February – but you are required to have it posted for that entire month. If you do not keep track of the injuries and illnesses or fail to post during February, then you are out of compliance.

1910.24(f) – Stair treads. “All treads shall be reasonably slip-resistant and the nosings shall be of nonslip finish. Welded bar grating treads with nosings are acceptable providing the leading edge can be readily identified by personnel descending the stairway and provided the tread is serrated or is of definite nonslip design. Rise height and tread shall be uniform throughout any flight of stairs including any foundation structure used as one or more treads of the stairs.”

1910.24(h) – Railings and handrails. “Standard railings shall be provided on the open sides of all exposed stairways and stair platforms. Handrails shall be provided on at least one side of closed stairways preferably on the right side descending. Stair railings and handrails shall be installed in accordance with the provisions of 1910.23.”

1910.37(k)(2) Keep pathways to exits clear. “Means of egress shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or emergency.”

Don’t leave parked forklifts, trash or material in front of exits or in the direct path to an exit.

1910.37(q)(1) – Exit marking. “Exits shall be marked by a readily visible sign. Access to exits shall be marked by readily visible signs in all cases where the exit or way to reach it is not immediately visible to the occupants.”

Exits must be marked by a readily visible sign. Two other very important points about exits – (1) the way to the exit must be kept clear and free from obstructions (parked forklifts, trash, stored material, etc.) and (2) **NEVER lock exit doors while employees are in the building.**

1910.37(q)(02) – Marking doors that are not an exit. “Any door, passage, or stairway which is neither an exit, nor a way of exit access and which 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, or shall be identified by a sign indicating its actual character, such as “To Basement,” “Storeroom,” “Linen Closet,” or the like.”

If a door could be misidentified as an exit, then you must display a sign that says, “NOT AN EXIT,” or that states where the door leads, for example, “TO BASEMENT.”

1910.38(a)(01) – Emergency action plan. “This paragraph (a) applies to all emergency action plans required by a particular OSHA standard. The emergency action plan shall be in writing (except as provided in the last sentence of paragraph (a)(5)(iii) of this section [(a)(5)(iii) last sentence says, ‘For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.’]) and shall cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies.

2. *Elements.* The following elements, at a minimum, shall be included in the plan:

- (i) Emergency escape procedures and emergency escape route assignments;
- (ii) Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;
- (iii) Procedures to account for all employees after emergency evacuation has been completed;
- (iv) Rescue and medical duties for those employees who are to perform them;
- (v) The preferred means of reporting fires and other emergencies; and
- (vi) Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.”

NOTE: “Other emergencies” could include tornadoes, earthquakes, bomb threats, etc. You need to consider the types of emergencies you may be forced to face and have an emergency plan of action to cover that situation.

1910.95(b)(01) – Noise – engineering and administrative controls. “When employees are subjected to sound exceeding those listed in table G-16, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of table G-16, personal protective equipment shall be provided and used to reduce sound levels to within the levels of this table.

Table G-16--Permissible Noise Exposures¹

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

¹ 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: $C_1/T_1 + C_2/T_2 + C_n/T_n$ exceeds unity, then, the mixed exposure should be considered to exceed the limit value. C_n indicates the total time of exposure at a specified noise level, and T_n indicates the total time of exposure permitted at that level.

Exposure to impulsive or impact noise should not exceed 140 dB peak sound pressure level.”

Composting sites may have noisy machines. If you are not sure how loud your equipment is, conduct a study to determine the 8 hour Time Weighted Average noise level.

If a worker is subject to an 8 hour Time Weighted Average noise level greater than 90 dB (decibels) then you must at least try to use engineering and administrative controls to reduce the exposure level. “Engineering controls” are defined as “any modification or replacement of equipment, or related physical change at the noise source or along the transmission path (with the exception of hearing protectors) that reduces the noise level at the employee’s ear. Typical engineering controls involve:

1. Reducing noise at the source.
2. Interrupting the noise path.
3. Reducing reverberation.
4. Reducing structure-borne vibration.

Common examples of implementing such controls are:

1. Installing a muffler
2. Erecting acoustical enclosures and barriers.
3. Installing sound absorbing material.
4. Installing vibration mounts and providing proper lubrication.” (“Preventing Occupational Hearing Loss, A Practical Guide,” NIOSH, U.S. Department of Health and Human Services, Revised October, 1996, p. 19)

Administrative controls are defined as “changes in the work schedule or operations which reduce noise exposure... Examples include operating a noisy machine on the second or third shift when fewer people are exposed, or shifting an employee to a less noisy job once a hazardous daily dose has been reached.” (ibid., p. 20)

In the noise standard you will find the word “attenuation.” Attenuation refers to the ability of a hearing protector device (like ear plugs or ear muffs) to reduce the decibel level of the noise. On boxes of hearing protectors, or in catalog ads you will find an NRR – this stands for Noise Reduction Rating. The NRR is expressed in dB. This is the manufacturer’s claimed dB reduction if you wear the hearing protector. In Appendix B of the hearing standard you will find “methods for estimating the adequacy of hearing protector attenuation.” The formula shown there is:

A-weighted $TWA_8 - (NRR - 7)$

The A-weighted TWA_8 is the 8-hour Time Weighted Average measurement, using a sound level meter or dosimeter, set to “A” weighting.

The NRR is the Noise Reduction Rating from the ear plug or muff box or package.

You need to try to get the decibel level under 85.

Example:

You conduct a noise survey and the A-weighted TWA_8 is 97 dB.

You see that the ear plugs you’re using are rated at NRR of 29.

Is that sufficient?

Plugging in the numbers:

$$97 - (29 - 7) =$$

$$97 - 22 = 75$$

So yes, the ear plugs are helpful.

Now, you need to know that too much NRR can also be a problem if the ear plugs interfere with verbal work instructions, don’t allow employees to hear tell-tale machine problem sounds, etc.

In situations where employees use ear plugs and ear muffs and you want to calculate the attenuation of the combination, first take the highest NRR value of the two items, then do the calculation for the $NRR - 7$, then add **5** to that number. It sounds more complex than it is.

Example:

$TWA_8 = 110$

Ear plug NRR = 29

Ear muff NRR = 25

$$TWA_8 - ((NRR - 7) + 5) =$$

$$110 - ((29 - 7) + 5) =$$

$$110 - (22 + 5) = 83$$

In this example, using only ear plugs or only ear muffs would not get you under the 85 dB.

1910.95(c)(01) – Hearing conservation program. “The employer shall administer a continuing, effective hearing conservation program , ... whenever employee noise exposures equal or exceed an 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent. For purposes of the hearing conservation program, employee noise exposures shall be computed ...without regard to any attenuation provided by the use of personal protective equipment.”

If you have a noise problem, you need a hearing conservation program.

1910.106(a)(29) Safety can. “Safety can shall mean an approved container of not more than 5 gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure.”

1910.132(a) – Application. “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(d)(01) - PPE selection. “The employer shall assess the workplace to determine if hazards are present, or are likely to be present, which necessitate the use of personal protective equipment (PPE). If such hazards are present or likely to be present, the employer shall:

- (i) Select, *and have each affected employee use*, the types of PPE that will protect the affected employee from the hazards identified in the hazard assessment;
- (ii) Communicate selection decisions to each affected employee; and
- (iii) Select PPE that properly fits each affected employee.”

1910.132(d)(2) PPE hazard assessment. “The employer shall verify that the required workplace hazard assessment has been performed through a written certification that identifies the workplace evaluated; the person certifying that the evaluation has been performed; the date(s) of the hazard assessment; and, which identifies the document as a certification of hazard assessment.”

NOTE: You do not have to have a “certified” person conduct the assessment. *You* conduct the assessment, identify the document as the hazard assessment, follow the instructions listed here (from the standard) and keep the document (the certification of hazard assessment) on file. Do this for every job category you have.

1910.132(f)(04). “The employer shall verify that each affected employee has received and understood the required training through a written certification that contains the name

of each employee trained, the date(s) of training, and that identifies the subject of the certification.”

1910.133(a)(1) – Eye and face protection. “The employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors, or potentially injurious light radiation.”

If the eyes and/or faces of employees need to be protected, then you, the employer must make sure that they wear the protective equipment. This includes when people weld “just for a minute.” They still must wear welding goggles, or a welding hood or some other device to protect their eyes.

1910.141(g)(2) – Consumption and storage of food and beverage. “No employee shall be allowed to consume food or beverages in a toilet room nor in any area exposed to a toxic material.”

Do employees work around “biosolids” derived from human waste (in the form of sludge) and then go eat and drink at their break? Do you have a place for them to wash their hands? Because **1910.141(d)(2) – Washing Facilities** states, “Lavatories shall be made available in all places of employment. The requirements of this subdivision do not apply to mobile crews or to normally unattended work locations if employees working at these locations have transportation readily available to nearby washing facilities which meet the other requirements of this paragraph.”

1910.141(g)(4) “No food or beverage shall be stored in toilet rooms or in an area exposed to a toxic material.”

Employees can’t eat or drink in bathrooms and they should not eat or drink at their workstations around solvents, thinners, paints, oils, or other potentially dangerous chemicals.

1910.151(b) – Medical services and first aid. “In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. First aid supplies approved by the consulting physician shall be readily available.”

“Near proximity” is interpreted as 3 to 5 minutes away.

NOTE: A fire station with a paramedic does not count because the paramedic could be out on a call when you have your emergency.

1910.157(c)(1) Mount fire extinguishers. “The employer shall provide portable fire extinguishers and shall mount, locate and identify them so that they are readily accessible to employees without subjecting the employees to possible injury.”

So, if you have fire extinguishers, make sure they are mounted to a wall, etc. and employees can get to them easily.

1910.157(e)(2) Inspect fire extinguishers monthly. “Portable extinguishers or hose used in lieu thereof under paragraph (d)(3) of this section shall be visually inspected monthly.”

Most fire extinguishers have an inspection tag already on them. Check to make sure fire extinguisher is present, in operable condition (not banged up or damaged), and fully charged. Initial and date the tag.

1910.157(c)(4) Charged fire extinguishers. “The employer shall assure that portable fire extinguishers are maintained in a fully charged and operable condition and kept in their designated places at all times except during use.”

Just look at the gauge on top. If it reads “recharge” then pull the extinguisher, replace with a charged one, and recharge the one you removed.

1910.169(b)(3)(i) Pressure gage for air receivers. “Every air receiver shall be equipped with an indicating pressure gage (so located as to be readily visible) and with one or more spring-loaded safety valves. The total relieving capacity of such safety valves shall be such as to prevent pressure in the receiver from exceeding the maximum allowable working pressure of the receiver by more than 10 percent.”

1910.178(k)(1) Chock the wheels of trucks that you’re loading or unloading. “The brakes of highway trucks shall be set and wheel chocks placed under the rear wheels to prevent the trucks from rolling while they are boarded with powered industrial trucks.”

If your employees drive forklifts into a truck to load or unload, make sure the truck’s brakes are set and wheel chocks are in place.

1910.178(p)(01) – Make sure forklifts are in good repair. “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.”

If the forklift came with a seat belt, then the driver must wear it. Make sure the lights, horns and other equipment work. Also be on the lookout for oil and other fluid leaks.

1910.215(a)(04) – Work-rests on grinders must be adjusted to within 1/8” of the abrasive wheel. “On offhand grinding machines, work rests shall be used to support the work. They shall be of rigid construction and designed to be adjustable to compensate for wheel wear. Work rests shall be kept adjusted closely to the wheel with a maximum opening of one-eighth inch to prevent the work from being jammed between the wheel and the rest, which may cause breakage. The work rest shall be securely clamped after each adjustment. The adjustment shall not be made with the wheel in motion.”

The work rest is the adjustable metal piece near the bottom of the wheel opening. This needs to be adjusted to prevent workers from jamming material into the wheel and causing the wheel to be damaged or shatter.

1910.215(b)(09) – Tongue guards on grinder must be adjusted to within ¼” of the abrasive wheel. The tongue guard is the adjustable metal piece near the top of the wheel opening. The tongue guard is important because if the wheel shatters, debris could fly through the work area and injure not only the operator but anyone else in the area.

1910.242(b) Using compressed air for cleaning. “Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment.”

This also means you need to have a gage on the receiver so you know what the p.s.i. is.

1910.253(b)(4)(i) Don’t store oxygen cylinders near flammable material. “Oxygen cylinders shall not be stored near highly combustible material, especially oil and grease; or near reserve stocks of carbide and acetylene or other fuel-gas cylinders, or near any other substance likely to cause or accelerate fire; or in an acetylene generator compartment.”

Keep oxygen cylinders at least 20 feet away from flammable materials.

1910.303(b)(1) “Electrical equipment shall be free from recognized hazards that are likely to cause death or serious physical harm to employees. Safety of equipment shall be determined using the following considerations:

(ii) Mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection thus provided.”

NOTE: The following is a “catch-all” section. If an inspector sees a dangerous or potentially dangerous electrical situation that is not specifically covered by another section, he or she can cite this one.

1910.303(f) – Identify disconnecting means and circuits. “Each disconnecting means required by this subpart for motors and appliances shall be legibly marked to indicate its purpose, unless located and arranged so the purpose is evident. Each service, feeder, and branch circuit, at its disconnecting means or overcurrent device, shall be legibly marked to indicate its purpose unless located and arranged so the purpose is evident. These markings shall be of sufficient durability to withstand the environment involved.”

Make sure that anyone who looks at the inside panel of your breaker boxes can identify which breaker goes to what piece of equipment, set of lights, etc.

1910.303(g)(01)(i) - Keep working spaces clear in front of electrical equipment. “Sufficient access and working space shall be provided and maintained about all electric equipment to permit ready and safe operation and maintenance of such equipment.”

Because space is limited, people often will store material in front of electrical panels, blocking access. Leave room for employees to get in and out of the area.

1910.303(g)(2)(i) – Guarding live parts of electric equipment. “Except as required or permitted elsewhere in this subsection, live parts of electric equipment operating at 50 volts or more shall be guarded against accidental contact by approved cabinets or other forms of approved enclosures, or by any of the following means:

- (a) By location in a room, vault, or similar enclosure that is accessible only to qualified persons.
 - (b) By suitable permanent, substantial partitions or screens so arranged that only qualified persons will have access to the space within reach of the live parts. Any openings in such partitions or screens shall be so sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.
 - (c) By location on a suitable balcony, gallery, or platform so elevated and arranged as to exclude unqualified persons.
 - (d) By elevation of 8 feet or more above the floor or other working surface.
- (ii) In locations where electric equipment would be exposed to physical damage, enclosures or guards shall be so arranged and of such strength as to prevent such damage.
 - (iii) Entrances to rooms and other guarded locations containing exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter.

1910.334(a)(02)(i) – Inspect portable cords and plugs connected to equipment before use. “Portable cord and plug connected equipment and flexible cord sets (extension cords) shall be visually inspected before each use on any shift for external defects (such as loose parts, deformed and missing pins, or damage to outer jacket or insulation) and for evidence of possible internal damage (such as pinched or crushed outer jacket). Cord and plug connected equipment and flexible cord sets (extension cords) which remain connected once they are put in place and are not exposed to damage need not be visually inspected until they are relocated.”

Check your cords. If they are damaged, do not use them.

1910.1030(c)(01)(i) – Exposure control plan for Bloodborne Pathogens Program (BBP). “Each employer having an employee(s) with occupational exposure as defined by paragraph (b) of this section shall establish a written Exposure Control Plan designed to eliminate or minimize employee exposure.”

Paragraph (b) defines occupational exposure as “reasonably anticipated skin, eye, mucous membrane, or parenteral contact with blood or other potentially infectious materials that may result from the performance of an employee’s duties.”

Parenteral means “piercing mucous membranes or the skin barrier through such events as needlesticks, human bites, cuts and abrasions.”

The exposure control plan must include an exposure determination, a schedule and method of implementation, and a procedure for evaluating circumstances surrounding an exposure incident. Review the types of injuries you have at your facility. If you have lots of cuts and lacerations you should consider a BBP program (if you don’t already have one). Exposures to blood, body fluids and other potentially infectious materials (OPIM) help determine whether you have workplace exposure requiring BBP. Also, if you have designated first aid responders (not first responders for HAZWOPER) then you need to provide a BBP for them. Employees who simply try to help a bleeding co-worker are known as “good Samaritans” and do not fall under the BBP standard.

Another often overlooked component of this standard involves when employees are given the hepatitis B vaccination (HBV). 29 CFR Part 1910.1030(f)(2) includes an exception for HBV shots if “the vaccine is contraindicated for medical reasons.” This means that some sort of a medical evaluation needs to occur *before* the shots are given to determine if the person can take the shots. Have the individual checked by a doctor before the series of shots are given.

Tennessee does not require any special shots for employees of composting, mulching or landfill sites. HOWEVER, you, the employer, are required to make a hazard determination as to whether or not your employees are exposed to, for instance, bloodborne pathogens. If they are, then you do need to provide them the opportunity to be vaccinated as mentioned above.

1910.1030(f)(2)(iv). “The employer shall assure that employees who decline to accept hepatitis B vaccination offered by the employer sign the statement in Appendix A.” (of the standard)

A FEW “TECHNICAL” POINTS

This section deals with standards that have technical requirements such as how high railings must be, how wide stairs must be and so on. This section is separate because whereas you can often spot obvious safety hazards such as wet floors, frayed extension cords, and unlabeled containers of chemicals, the technical standards require (1) knowledge of the requirement and (2) a measurement.

Open-sided floors and platforms

1910.23(c)(1) “Every open-sided floor or platform 4 feet or more above adjacent floor or ground level shall be guarded by a standard railing (or the equivalent as specified in paragraph (e)(3) of this section) on all open sides except where there is entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a toeboard wherever, beneath the open sides,
Persons can pass

There is moving machinery, or
 There is equipment with which falling materials could create a hazard.”

1910.23(e)(3)(i) For wood railings, the posts shall be of at least 2-inch by 4-inch stock spaced not to exceed 6 feet; the top and intermediate rails shall be of at least 2-inch by 4-inch stock. If top rail is made of two right-angle pieces of 1-inch by 4-inch stock, posts may be spaced on 8-foot centers, with 2-inch by 4-inch intermediate rail.

- (ii) For pipe railings, posts and top and intermediate railings shall be at least ½ inches nominal diameter with posts spaced not more than 8 feet on centers.
- (iii) For structural steel railings, posts and top and intermediate rails shall be of 2-inch by 3/8-inch angles or other metal shapes of equivalent bending strength with posts spaced not more than 8 feet on centers.
- (iv) The anchoring of posts and framing of members for railings of all types shall be of such construction that the completed structure shall be capable of withstanding a load of at least 200 pounds applied in any direction at any point on the top rail.
- (v) Other types, sizes, and arrangements of railing construction are acceptable provided they meet the following conditions:
 - (a) A smooth-surfaced top rail at a height above the floor, platform, runway, or ramp level of 42 inches nominal;
 - (b) A strength to withstand at least the minimum requirement of 200 pounds top rail pressure;
 - (c) Protection between top rail and floor, platform, runway, ramp, or stair treads, equivalent at least to that afforded by a standard intermediate rail”

So, if you employ very short people or very tall people, you may want to install other protective devices (such as mesh screens) to enhance the protection, but the top of the top rail must be at least 42 inches from the floor or working surface.

Toeboards are defined at CFR 1910.23(e)(4). “A standard toeboard shall be 4 inches nominal in vertical height from its top edge to the level of the floor, platform runway, or ramp. It shall be securely fastened in place and with not more than ¼ inch clearance above floor level. It may be made of any substantial material either solid or with openings not over 1 inch in greatest dimension. Where material is piled to such a height that a standard toeboard does not provide protection, paneling from floor to intermediate rail, or to top rail shall be provided.”

(The toeboard runs along the floor of the overhead area to keep things from rolling off onto people or into machines below.)

Stairs:

1910.23(d)(1) “Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails as specified in paragraphs (d)(1)(i) through (v) of this section, the width of the stair to be measured clear of all obstructions except handrails:

On stairways less than 44 inches wide having both sides enclosed, at least one handrail, preferably on the right side descending.

On stairways less than 44 inches wide having one side open, at least one stair railing on each side.

On stairways less than 44 inches wide having both sides open, one stair railing on each side.

On stairways more than 44 inches wide but less than 88 inches wide, one handrail on each enclosed side and one stair railing on each open side.

On stairways 88 or more inches wide, one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.”

A stair railing is defined in 29 CFR Part 1910.23(e)(2): “A stair railing shall be of construction similar to a standard railing but the vertical height shall not be more than 34 inches nor less than 30 inches from upper surface of top rail to surface of tread in line with face of riser at forward edge of tread.”

In other words, the top of the stair railing can’t be less than 30” or more than 34” above the middle of the stair step.

Exits

1910.37(f)(6) “The minimum width of any way of exit access shall in no case be less than 28 inches. Where a single way of exit access leads to an exit, its capacity in terms of width shall be at least equal to the required capacity of the exit to which it leads. Where more than one way of exit access leads to an exit, each shall have a width adequate for the number of persons it must accommodate.”

1910.37(q)(8) “Every exit sign shall have the word “Exit” in plainly legible letters not less than 6 inches high, with the principal strokes not less than three-fourths-inch wide.”

Sprinkler systems

1910.159(c)(10) “The employer shall assure that sprinklers are spaced to provide a maximum protection area per sprinkler, a minimum of interference to the discharge pattern by building or structural members or building contents and suitable sensitivity to possible fire hazards. The minimum vertical clearance between sprinklers and material below shall be 18 inches (45.7 cm.).”

Standards for Agriculture (1928)

The agricultural standards apply to agricultural operations.

The following general industry standards (1910) apply to agricultural operations as well:

1910.142 – Temporary labor camps
 1910.111(A) and (b) – Storage and handling of anhydrous ammonia
 1910.266 – Logging operations
 1910.145 - Slow-moving vehicles
 1910.1200 – Hazard communication
 1910.1027 - Cadmium
 1910.1201 - Retention of DOT markings, placards, and labels

Here are some highlights of the standards for agriculture:

1928.51: Roll-over protective structures (ROPS) for tractors used in agricultural operations.

- **Tractors manufactured after October 25, 1976, must meet the following requirements:**
 - ***Roll-over protection structure.*** Each tractor operated by an employee must have ROPS.
 - ***Seatbelts.*** On tractors with ROPS, each needs to have a seatbelt. Each employee must tighten the seatbelt sufficiently to confine the employee to the protected area provided by the ROPS. Each seatbelt must meet the requirements of the Society of Automotive Engineer Standard SAE J4C, 1965 Motor Vehicle Seat Belt Assemblies. There are specifics as to make-up of the seat belt, how much it should withstand (static tensile load of 1,000 pounds) and so forth.
 - ***Protection from spillage.*** Batteries, fuel tanks, oil reservoirs, and coolant systems shall be constructed and located or sealed to assure that spillage will not occur which may come in contact with the operator in the event of an upset.
 - ***Protection from sharp surfaces.*** All sharp edges and corners at the operator's station shall be designed to minimize operator injury in the event of an upset.
 - ***Exempted uses.*** ROPS and seatbelts sections do not apply to low profile tractors used in orchards, vineyards, etc. where vertical clearance requirements would substantially interfere with their use. Low profile tractors used inside a farm building or greenhouse where vertical clearance is insufficient for ROPS are also exempted. And, tractors using mounted equipment which is incompatible with ROPS (e.g., cornpickers, cotton strippers, vegetable pickers, and fruit harvesters) are exempted.
 - ***Remounting.*** Where ROPS are removed for any reason, they shall be remounted.
 - ***Labels.*** Each ROPS is to have a label permanently affixed to the structure which states:
 - *Manufacturer's or fabricator's name and address*
 - *ROPS model number (if any)*
 - *Tractor makes, models, or series numbers that the structure is designed to fit*

- *That the ROPS model was tested in accordance with the requirements of the agricultural standard*
- **Operating instructions (Training).** Every employee who operates an agricultural tractor shall be informed of the operating practices contained in Appendix A (shown below) and any other practices dictated by the work environment. *Such information shall be provided at the **time of initial assignment and at least annually thereafter.***
 - Securely fasten your seat belt if the tractor has a ROPS
 - Where possible, avoid operating the tractor near ditches, embankments, and holes
 - Reduce speed when turning, crossing slopes, and on rough, slick, or muddy surfaces
 - Stay off slopes too steep for safe operations
 - Watch where you are going, especially at row ends, on roads, and around trees.
 - Do not permit others to ride
 - Operate the tractor smoothly – no jerky turns, or stops
 - Hitch only to the drawbar and hitch points recommended by tractor manufacturers
 - When tractor is stopped, set brakes securely and use park lock if available
- **Guarding of farm equipment.**
 - **Training.** At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of equipment with which he or she will be involved. The training must include the following safe operating practices:
 - Keep all guards in place when the machine is in operation
 - Permit no riders on farm field equipment other than persons required for instruction or assistance in machine operation
 - Stop engine, disconnect the power source, and wait for all machine movement to stop before servicing, adjusting, cleaning, or unclogging the equipment, except where the machine must be running to be properly serviced or maintained, in which case the employer shall instruct the employees as to all steps and procedures which are necessary to safely service or maintain the equipment
 - Make sure everyone is clear of machinery before starting the engine, engaging power, or operating the machine
 - Lock out electrical power before performing maintenance or service on equipment
 - **Methods of guarding.** Protect employees from the hazards of moving machinery parts by:
 - Installing and using a guard or shield or by guarding the location
 - Using a guardrail or fence whenever using a guard or shield is not feasible
 - **Strength and design of guards.**
 - Unless otherwise stated, each guard and its supports shall be capable of holding up to the force that would be created by a 250 pound person leaning or falling against the guard
 - Guards are to be free from burrs, sharp edges, and sharp corners, and shall be securely fastened to the equipment or building

- ***Guarding by location.*** A component is guarded by location during operation, maintenance, or servicing when, because of its location, no employee can inadvertently come in contact with the hazard during such operation, maintenance, or servicing
- ***Guarding by railings.*** Guardrails or fences shall be capable of protecting against employees inadvertently entering the hazardous area
- ***Servicing and maintenance.*** Whenever moving parts present a hazard during servicing or maintenance, stop the engine, disconnect the power source and stop all machine movement before performing tasks. (Unless equipment must be running to properly service or maintain; equipment cannot be service or maintained while the guard is in place and the servicing or maintenance can be safely performed.) There are several specific requirements regarding power take-off guarding (including posting signs at “prominent locations” on tractors specifying that power drive system safety shields must be kept in place.) There are also requirements involving guarding other power transmission components such as nip points of power driven gears, belts, chains, sheaves, pulleys, sprockets, rotating shafts, and idlers. You are to keep guards in place when equipment is in operation. There are also specifications regarding openings and placement of the guards. You are to provide an exclusive, positive locking means on the main switch of electrical disconnects as well as meet other electrical guarding requirements spelled out.
- **Field Sanitation.** This section applies to any agricultural establishment with eleven or more employees engaged on any given day in hand-labor operations in the field.
 - ***Requirements.*** These things are to be provided by the employer to the employees at no cost to the employees:
 - potable (meets E.P.A. quality standards) drinking water provided and placed in locations readily accessible to all employees. The water shall be suitably cool and in sufficient amounts, taking into account air temperature, humidity and the nature of the work performed, to meet the needs of all employees and shall be dispensed in single-drinking cups or by fountains. The use of common drinking cups or dippers is prohibited. Drinking water containers shall be constructed of materials that maintain water quality, shall be refilled daily or more often as necessary, and be kept covered and regularly cleaned
 - one toilet facility and one handwashing facility shall be provided for each twenty employees or fraction thereof (unless employees perform field work for a period of less than three hours a day.) Toilet facilities are to be adequately ventilated, appropriately screened, and have self-closing doors that can be closed and latched from the inside and be operational and maintained in a clean and sanitary condition. Toilet and handwashing facilities shall be located in close proximity (within one-quarter mile walk of each hand laborer’s place of work in the field or the point of closest vehicular access.) Handwashing facilities shall be refilled with potable water as necessary to ensure as adequate supply and shall be maintained in

a clean and sanitary condition. Disposal of wastes from facilities shall not cause unsanitary conditions

- **employer is to notify** employees of the location of the facilities and allow each employee reasonable opportunities to use them during the workday. **Employer shall also inform** each employee of the importance of each of the following good hygiene practices to minimize exposure to the hazards in the field of heat, communicable diseases, retention of urine and agrichemical residues: use water and facilities provided for drinking, hand washing and elimination; drink water frequently, especially on hot days; urinate as frequently as necessary; wash hands before and after using the toilet and before eating and smoking

A LOOK AT GENERAL INDUSTRY STANDARDS WITH TRAINING REQUIREMENTS

Since composting is considered General Industry by some and Agricultural by other, it is a good idea to at least be aware of the training and written program requirements of both sets of rules. Remember, too, that even with Agricultural standards, certain General Industry standards apply, i.e., the hazard communication standard. As you review this section, please note the “W”s. The “W” signifies that there is a written program requirement for this standard as well. This information is also available on the list, “General Industry Standards With Written Program Requirements.”

The written requirements will vary from standard to standard. Basically, a written program shows your company’s plan for complying with the OSHA standard. The written plan spells out procedures to follow, who is responsible for what, who to contact for more information and so forth.

The following section alphabetizes, by standard lists the standards with training requirements. Though the listing order does not indicate priorities, you do need to prioritize your training. We suggest hazard communication, lockout tagout, emergency action and fire prevention plans, Personal Protective Equipment (PPE), portable fire extinguishers, and forklift training as a good starting list. ALSO – machine-specific safety training for saws, planers, routers, etc. should be conducted before employees are allowed to work on them.

Access to medical and exposure records 1910.1020

- Inform employees when they first enter employment and annually thereafter about:
 - the existence, location and availability of records
 - the person responsible for maintenance and access to records
 - the employee’s right of access

Bloodborne pathogens (BBP) 1910.1030 - W

- All employees with occupational exposure must be trained:
 - at initial assignment to tasks where exposure could occur
 - at least annually thereafter
- Material must be appropriate in content and vocabulary to educational level, literacy and language of trainee
- Trainer must be knowledgeable in subject matter as it relates to the workplace involved
- Training must include:
 - explanation of content of standard
 - general explanation of diseases and symptoms
 - modes of transmission of BBP
 - exposure control plan
 - identifying tasks that may expose to BBP and other potentially infectious material (OPIM)

- use and limits of engineering controls, work practices and PPE
- types, proper use, location, removal, handling, decontamination, disposal of PPE
- basis for selection of PPE
- information on the hepatitis B vaccination - benefits, safety, offered free
- what to do in emergency - contact, etc.
- method of reporting after exposure
- post-exposure evaluation and follow up
- meaning of signs, labels, color coding
- opportunity to ask questions
- BBP - the five questions TOSHA will ask your employees
 1. What does universal precaution mean?
 2. What do you do when there is a blood spill? (PPE, clean up, disinfection)
 3. What to do with contaminated laundry?
 4. Have you been offered hepatitis B vaccination free of charge?
 5. Where is the company's exposure control plan and has it been explained?

Cadmium 1910.1027 (*This is required for Agricultural standards also*) - W

- For all employees who are potentially exposed to cadmium, assure employee participation in the program and maintain a record of the contents of the program
- Provide prior to or at the time of initial assignment to a job with potential exposure to cadmium and at least annually thereafter
- Make the training understandable to the employee and assure each is informed of the following:
 - health hazards associated with cadmium exposure, with special attention paid to information in appendix A of the cadmium standard
 - quantity, location, manner of use, release, and storage of cadmium in the workplace and the specific nature of operations that could result in exposure to cadmium, especially exposures above the PEL (Permissible Exposure Level)
 - engineering controls and work practices associated with the employee's job assignment
 - measures employees can take to protect themselves from exposure to cadmium, including modification of such habits as smoking and personal hygiene, and specific procedures the employer has implemented to protect the employees from exposure to cadmium such as appropriate work practices, emergency procedures, and the provision of personal protective equipment
 - purpose, proper selection, fitting, proper use, and limitations of respirators and protective clothing
 - purpose and a description of the medical surveillance program required by the standard
 - the contents of the standard and its appendices
 - employee's right of access to medical and exposure records
 - additional access to information and training program and materials
- Written program must include

- description of each operation in which cadmium is emitted (machinery used; materials processed; controls in place; crew size; employee job responsibilities; operating procedures; and maintenance procedures)
- description of specific means employed to achieve compliance with the standard, including engineering plans and studies used to determine methods selected for controlling exposure to cadmium, as well as, where necessary, use of appropriate respiratory protection to achieve the PEL
- report of the technology considered in meeting the PEL
- air monitoring data that document sources of cadmium emissions
- detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.
- a work practice program that includes items listed in the standard at paragraphs (h), (i), and (j)
- a written plan for emergency situations and
- other relevant information

Electrical safety-related work practices 1910.332

- Train in work practices laid out in 1910.331 – 335 of the standards
- UNQUALIFIED (those who won't work on or near energized parts) must know any electrically related safety practices not in 331-335 but necessary for safety
- QUALIFIED (those who do work on or near energized parts) must know:
 - Skills and techniques to know live parts from other parts
 - Skills/techniques to determine nominal voltage of live parts
 - Clearance distances in 1910.333(c) and corresponding voltage exposed to

Emergency action and fire prevention plans 1910.38 - W

Emergency action

- Designate and train assistants (people who will help with the evacuation)
- Train others when plan is developed,
- when responsibilities or actions change, and
- when plan is changed

1910.38 written plan must cover:

- emergency escape route procedures & assignments
- procedures for critical operations
- accounting for all employees afterward
- rescue/medical duties
- how to report emergencies
- whom to contact for more information

Fire prevention -W

- Apprise employees of fire hazards of materials and processes
- Conduct training upon initial assignment

- Must cover elements of the standard that employees must know for their protection in the event of emergency

1910.38 fire written plan must cover:

- List of major workplace hazards
- Handling, storage, ignition sources, control procedures, type of fire equipment to use
- Names and titles of people who maintain system
- Names and titles of those who control fuel source hazards

Employee alarm systems 1910.165

“The employer shall assure that the servicing, maintenance and testing of employee alarms are done by persons trained in the designed operation and functions necessary for reliable and safe operation of the system.”

Explosives and blasting agents 1910.109

- Drivers – must know traffic regulations, state laws for class A (dynamite) or B (flammable hazard - flash powders)
- Drivers must also know dangers of the class of material they are hauling, what to do to protect public from the dangers, and about the vehicle they are driving

Fire brigades 1910.156 - W

- Brigade members need training before they can fight fires
- Training requirements are more comprehensive for fire brigade leaders
- If the brigade is to fight interior structural fires they need training quarterly, otherwise retrain annually
- Training must meet criteria spelled out in standard

Fire detection systems 1910.164

- Applies to all fixed systems using water or foam
- Servicing, maintenance, testing, cleaning and necessary adjustments must be performed by “a trained person knowledgeable in the operations and functions of the system”

Fixed extinguishing systems 1910.160

- This applies to systems other than automatic sprinkler systems which are covered under 1910.159
- This standard is tied to 1910.165 (alarm systems)
- “The employer shall train employees designated to inspect, maintain, operate, or repair ...and annually review their training to keep them up-to-date in the functions they were to perform”

Flammable & combustible liquids 1910.106

- Designated employees who carry out printed instructions during flood emergencies: must know location, operation of valves and other equipment to carry out flood emergency functions

Formaldehyde 1910.1048 – W

- Employer “shall assure” all employees exposed to formaldehyde at or above 0.1 ppm participate in the training program
- Provide at time of initial assignment, whenever a new exposure introduced and at least annually
- Training shall be conducted in a manner which the employee can understand and must include:
 - contents of 1910.1048 and contents of the Material Safety Data Sheet
 - purpose for and description of medical surveillance program required by 1910.1048
 - description of potential health hazards associated with exposure to formaldehyde and description of signs and symptoms of that exposure
 - instructions to immediately report to employer development of any adverse signs or symptoms that employee suspects is attributable to formaldehyde
 - descriptions of operations in the work area where formaldehyde is present and an explanation of safe work practices appropriate for limiting exposure to formaldehyde in each job
 - purpose for, proper use of, and limitations of personal protective clothing and equipment
 - instructions for handling spills, emergencies, and clean-up procedures
 - explanation of importance of engineering and work practice controls for employee protection and any necessary instruction in the use of these controls
 - review of emergency procedures including specific duties or assignments of each employee in the event of an emergency

Hazard communication (HAZCOM) 1910.1200 (*This is required for Agricultural standards also*) - W

- Provide:
 - At time of initial assignment of the new employee and annually thereafter
 - And when new hazard introduced
 - And *in a manner employee can understand*
- TOSHA evaluates training based on employee recall of “the 7 questions” (see below)
- You can’t “just read material...or hand them material to read” (per OSHA)
- Workers must “feel free to ask questions” (per OSHA)
- ESL, etc. instructed in manner they can “fully understand” (per OSHA)

- The 7 questions TOSHA will ask your employees:
 1. What is hazard communication training about?
 2. What hazardous chemical(s) are you or may you be exposed to?
 3. Where are the chemicals present?
 4. What are the short and long term effects of hazardous chemicals?
 5. How can you detect exposure?(monitoring, odor)
 6. How can you protect yourself?
 7. Where are written program and MSDS?

Employees must be able to VERBALIZE answers

Here is a method to help your employees remember the short- and long-term effects of chemicals.

The short- and long-term effects are found on page C-1 (near the back) of the “What To Do” Booklet included in this manual (Appendix A.) As you see, there are many words there. I have simplified them this way: Short-term = DIDSFUD; long-term = DR. BOB MENS C.B.

Short-term effects = DIDSFUD

Dizziness

Irritation

Dermatitis

Sickness

Fever

Unconsciousness

Death

Long-term effects = Dr. Bob Mens C.B.

Death

Reproductive effects

Blood

Organs

Bones

Muscles

Eyes

Nerves

Skin

Cancer

Birth defects

HAZWOPER 1910.120 - W

- “All employees working on site...exposed to hazardous substances, health hazards or safety hazards and their supervisors and management responsible for the site shall receive training...”
- Training must occur before they can engage in hazardous waste operations
- The training requirements are detailed. Refer to the standard for more information
- Trainers have to meet criteria
- Duty-specific training is contained within the standard

Ionizing radiation 1910.96

- All individuals working in or frequenting radiation areas need to be informed of presence of radioactive material, safety hazards, precautions, devices to use and of reports of exposure

Lockout/tagout 1910.147-W

- **AUTHORIZED** - people who lockout/tagout or otherwise work on a machine must know:
 - how to recognize hazardous energy sources
 - the type and magnitude of hazardous energy available
 - the methods and means for energy isolation & control
- **AFFECTED** - people who operate machine must know:
 - purpose and use of energy control procedure
- **AFFECTED** becomes **AUTHORIZED** if the affected employee’s job duties include **servicing/maintaining** equipment
- Definition of **servicing/maintaining**:
 - “workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, maintaining and/or servicing...”
 - Includes lubing, cleaning, unjamming machines
- **OTHER** – employee’s work operations are or may be in an area where energy controls are used. They must know:
 - about the lockout/tagout procedure
 - the prohibition against restarting a machine which is locked/tagged out

If tags are used, then employees must know:

- limitations of tags (such as they don’t provide physical restraint)
- if a tag is on a machine, don’t remove the tag without authorization.
- Retrain **affected and authorized** personnel
 - when changes occur
 - when an inspection reveals an individual has a problem understanding the procedures
- **CERTIFY** that training has occurred with the trained employee’s name and date of training. Certifying simply means documenting in writing

Logging Operations 1910.266 (*This is required for Agricultural standards also*)

- Train prior to initial assignment, whenever employee is assigned new work tasks, tools, equipment, machines or vehicles and whenever employee demonstrates unsafe job performance
- Content to include:
 - safe performance of assigned work tasks
 - safe use, operation and maintenance of tools, machines and vehicles the employee uses or operates, including emphasis on understanding and following the manufacturer's operating and maintenance instructions, warnings and precautions
 - recognition of safety and health hazards associated with the employee's specific work tasks, including the use of measures and work practices to prevent or control these hazards
 - recognition, prevention and control of other safety and health hazards in the logging industry
 - procedures, practices and requirements of the employer's work site
 - and the requirements of the standard
- Do not have to train employees who have already received the training
- Newly trained employees must work under the close supervision of a designated person until the employee demonstrates ability to safely perform new duties independently
- Each employee, including supervisors, must receive first-aid and CPR training meeting at least the requirements of appendix B of the standard. Also, the employer must assure that each employee's first-aid and CPR training and/or certificate remain current
- All training must be presented in a manner that the employee is able to understand. Training materials must be appropriate in content and vocabulary to educational level, literacy and language skills of the trainee
- Employer must certify training with a written certification record containing the name of the employee trained, dates of training, and the signature of the person who conducted the training (or the signature of the employer) If you rely on employee's prior training, indicate the date the employer determined the prior training was adequate. Employers must maintain the most recent training certification
- NOTE: this standard also requires you to conduct safety and health meetings at least each month for each employee

Medical services and first aid 1910.151

- If there is not an infirmary, clinic or hospital in near proximity (three to five minutes) of the plant, you:
 - Need a person or persons adequately trained to render first aid for each shift
- A nearby fire station that has a paramedic does not count because the Emergency Medical Technician (EMT) or paramedic might be out on a run when you have your emergency

Overhead and gantry cranes 1910.179

- If using two or more cranes, one qualified person shall be in charge of the operation. Instruct personnel in proper positioning, rigging of load, movements to make.
- Operators must be familiar with operation and care of fire extinguishers (remember 1910.157 Fire extinguishers.)

(NOISE) Occupational noise exposure 1910.95

- For all employees exposed to eight- hour Time Weighted Average (TWA_8) of 85 dB (decibels) or greater
- Employer “shall ensure employee participation” in the program – make sure affected employees wear hearing protectors, attend training, etc.
- Repeat training annually
- Update training for changes - in workplace, PPE, etc.

Noise training content:

- Effects of noise on hearing
- Purpose of hearing protectors
- Advantages, disadvantages, attenuation, instructions on selection, fitting, use, care of hearing protectors. Attenuation refers to the ability of the hearing protector to reduce the decibel level. On boxes of hearing protectors, or in the catalog ads you will find a NRR – this stands for Noise Reduction Rating. The NRR is expressed in dB. This is the manufacturer’s claimed dB reduction if you wear the hearing protector. Remember the formula for calculating attenuation we discussed earlier?

$$TWA_8 - (NRR - 7)$$

- Purpose of audiometric testing and explanation of test procedures.

Permit-controlled confined spaces 1910.146 - W

- Training for each affected employee must occur:
 - *before* employee is assigned duties
 - *before* there is a change in duties
 - whenever there is a change in operations
 - whenever deviations or inadequacies are noted in an employee’s performance. (You would note these inadequacies when you are auditing the system.)
- Employees need understanding, knowledge, and skills necessary for safe performance
- The employer needs to certify that training has been done by documenting:
 - the trained employee’s name
 - signatures or initials of trainers
 - the date of the training
- AUTHORIZED means – **entrant; person authorized to go into confined space**
- ATTENDANT means - **person stationed outside space who monitors entrants and carries out other duties**
- Authorized and affected employees need to know hazards, symptoms of overexposure, signs used, alarms used, etc.

- Rescue personnel must:
 - know about PPE and rescue equipment they will use
 - know assigned rescue duties
 - have understanding, knowledge, skills necessary for safe performance
 - practice a confined-space rescue once every 12 months
- All rescue personnel must also be trained in basic first-aid and CPR (cardiopulmonary resuscitation)
- At least one member of the rescue squad who has had first aid and CPR training shall be available during a rescue

Personal Protective Equipment (PPE) 1910.132

- The standard pertains to all employees who wears PPE.
- Training includes:
 - knowing when and what PPE is necessary
 - how to don, doff, adjust, and wear PPE
 - the limitations, proper care, maintenance, useful life and disposal of PPE
- **DON'T FORGET THE HAZARD ASSESSMENT.** The assessment must include the following information:
 - verification the assessment has been completed
 - identity of the workplace evaluated and who did the assessment
 - the date assessment was conducted
 - identification of the written document as certification of hazard assessment
- Employee must demonstrate understanding before working with PPE
- Retrain employee whenever changes occur to job or PPE
- Verify each employee received and understood the information with a written certification that shows
 - name of employee, date of training, subject of certification

NOTE: You do not have to have a “certified” person conduct the assessment – certification simply means you are documenting that you did it.

Portable fire extinguishers 1910.157

- Be careful what you say – if you “assign” certain people to handle fire extinguishers, you may have created a fire brigade. A fire brigade carries many other requirements that you probably don’t want to get into. Therefore:
 - If you have fire extinguishers, train everyone:
 - on the general principles of fire extinguisher use and hazards of incipient fire fighting
 - about PASS - Pull, Aim, Squeeze, Sweep

Powered industrial trucks (forklifts) 1910.178

- **NOTE:** Federal OSHA enacted new training requirements for this section on December 1, 1998. TOSHA will have to adopt these new requirements. As of August, 1999, Tennessee has not adopted the rule changes, but they will.

- Please also note, if an employee was hired before December 1, 1999, the initial training and evaluation of that employee must occur by December 1, 1999
- If the employee is hired after December 1, 1999, then the employee must be trained and evaluated before being assigned to operate a powered industrial truck
- Here are the new requirements:
 - The employer shall *ensure* that each powered industrial truck operator is competent to operate a powered industrial truck safely “as demonstrated by the successful completion of the training and evaluation” set forth in the new requirements
 - Trainees may operate a powered industrial truck under the direct supervision of persons who have the knowledge, training and experience to train operators and evaluate their performance
 - Training shall consist of a combination of formal instruction (i.e., lecture, video, etc.), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee) and evaluation of the operator’s performance in the workplace
 - All training shall be conducted by persons who have the knowledge, training and experience to train powered industrial truck operators and evaluate their competence
 - Training must contain:
 - **truck-related topics:**
 - operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate
 - differences between the truck and the automobile
 - truck controls and instrumentation: where they are located, what they do, and how they work
 - engine or motor operation
 - steering and maneuvering
 - visibility (including restrictions due to loading)
 - fork and attachment adaptation, operation, and use limitations
 - vehicle capacity
 - any vehicle inspection and maintenance that the operator will be required to perform
 - refueling and/or charging and recharging of batteries
 - operating limitation
 - any other operating instructions, warnings, or precautions listed in the operator’s manual for the types of vehicle what the employee is being trained to operate
 - **Workplace-related topics:**
 - surface conditions where the vehicle will be operated
 - composition of loads to be carried and load stability
 - load manipulation, stacking, and unstacking
 - pedestrian traffic in areas where the vehicle will be operated
 - narrow aisles and other restricted places where the vehicle will be operated

- hazardous (classified) locations where the vehicle will be operated
 - ramps and other sloped surfaces that could affect the vehicle's stability
 - closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust
 - other uniquely or potentially hazardous environmental conditions in the workplace that could affect safe operation
- **Refresher training** (provide in relevant topic areas):
 - when operator observed operating vehicle in unsafe manner
 - when operator has been involved in an accident or near-miss incident
 - when operator is assigned to drive a different type of truck
 - when a condition in the workplace changes in a manner that could affect safe operation of the truck
 - AND – an evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years
 - IF an operator has previously received training in a topic or topics covered in the section, then you don't have to retrain if the operator is evaluated and found competent
 - **Certification** The employer shall certify that each operator has been trained and evaluated. Certification shall include:
 - the name of the operator
 - the date of the training
 - the identity of the person(s) performing the training or evaluation

Powered platforms for exterior building maintenance 1910.66

- Working platforms can be operated only by people proficient in the operation, safe use and inspection of equipment
- Training must be done by competent person
- The employer must certify the name of the trainee, signature of employer or trainer and the date of training
- Training consists of:
 - recognition of, preventive measures for and safety hazards of work tasks
 - recognition of, and preventive measures for safety hazards of working platform
 - emergency action plan procedures
 - work procedures
 - inspection, care, and use of personal fall arrest system.

Respiratory protection 1910.134 – W

The respiratory standard has been amended with changes as of April 8, 1998. Per the standard, the training must be “comprehensive, understandable, and recur annually, and more often if necessary.”

The employer shall ensure that each employee can demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator
- What the limitations and capabilities of the respirator are
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions
- How to inspect, put on and remove, use, and check the seals of the respirator
- What the procedures are for maintenance and storage of the respirator
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- The general requirements of this section
- The training shall be conducted in a manner that is understandable to the employee
- The employer shall provide the training prior to requiring the employee to use a respirator in the workplace
- An employer who is able to demonstrate that a new employee has received training within the last 12 months that addresses the elements specified in paragraph (k)(1)(i) through (vii) is not required to repeat such training provided that, as required by paragraph (k)(1), the employee can demonstrate knowledge of those element(s). Previous training not repeated initially by the employer must be provided no later than 12 months from the date of the previous training.
- Retraining shall be administered annually, and whenever:
 - Changes in the workplace or the type of respirator render previous training obsolete
 - Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill
 - Any other situation arises in which retraining appears necessary to ensure safe respirator use
- The **basic advisory information** on respirators, as presented in Appendix D of the respirator standard section, **shall be provided** by the employer in any written or oral format, **to employees who wear respirators when such use is not required** (in other words, if they wear voluntarily) by this section or by the employer.

Servicing multi-piece and single-piece rim wheels 1910.177

- Applies to employees who service wheels on large vehicles such as trucks, tractors, buses, off-road machines
- Doesn't apply to cars, pickups, vans with car tires, or truck tires designated LT
- Presents detailed procedures for employees to follow

Specifications for accident prevention signs and tags 1910.145 *(This is required for Agricultural standards also)*

- "All employees shall be instructed that danger signs indicate immediate danger and that special precautions are necessary."

Standpipe and hose systems 1910.158

- Applies to all small hose (<1-1/2”), Class II and III standpipe systems
- “The employer shall designate trained persons to conduct all inspections required under this section.”

Storage and handling of anhydrous ammonia 1910.111 (*This is required for Agricultural standards also*)

- “The employer shall insure that unloading operations are performed by reliable persons properly instructed and given the authority to monitor careful compliance with all applicable procedures.”

Storage and handling of liquefied petroleum gases 1910.110

- “Personnel performing installation, removal, operation, and maintenance work shall be properly trained in such function.”

Temporary labor camps 1910.142 (*This is required for Agricultural standards also*)

- These facilities need a trained first aid person

Ventilation 1910.94

- “All employees working in and around open-surface tank operations must be instructed as to the hazards of their respective jobs, and in the personal protection and first aid procedures applicable to these standards.”
- If respirators are required, see 1910.134

(Welding)**Arc welding and cutting 1910.254**

- Designated workmen must be “properly instructed and qualified to operate such equipment...” per paragraph (d) of the standard
- Must be trained in machine hook up, grounding, leaks, switches, manufacturer’s instructions, electrode holders, electric shock, maintenance

Oxygen-fuel gas welding and cutting 1910.253

- Before leaving an employee in charge of oxygen or fuel-gas supply equipment, the employee “shall be instructed and judged competent.”

Resistance welding 1910.255

- Designated workmen shall be “properly instructed and judged competent” to operate equipment

Welding, cutting and brazing 1910.252

- Management must “insist that cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process.”

There are other OSHA standards with training requirements not listed here. If you have any questions about which ones apply to you, use appendix B of this manual “General Industry Standards With Training Requirements” and look up the standard to see if it applies to you.

WHAT YOU CAN DO

Get your employees involved in the process. They are out there every day and know what is and is not safe. With their help, you can maintain a safe workplace. You will become very knowledgeable about safety, but you cannot be everywhere at once. Use the extra brains and eyes of your employees to your advantage and to conduct safety hazard assessments of your facility.

Using the “heads up” section as a starting point, take a look around your site. You will probably find unlabeled containers, people eating and drinking around things they have no business eating and drinking around, misused and abused extension cords, fan blades exposed, and so on. You do not need to be a safety “expert” to look for safety hazards. Yes, there are technical requirements that you should learn, for instance, that standard railings for raised platforms need to be at least 42” high and that there must be 18” of clearance between a sprinkler head and material stored underneath, but *even the novice can spot unsafe conditions*.

During audits, as unsafe conditions are pointed out, the company representative often says, “I’ve never noticed that.” We tend to get used to stepping over and around even the most obvious problems. Go out to the composting site, into the maintenance buildings and sheds and garages with the intention of finding safety hazards. You will find some.

Take notes as you go. This will help you remember where the problems are and assist you when you write up a report and develop a “hit list” of things to correct. Remember the OSHA/TOSHA order of priorities for inspections – imminent danger is number one. When you prioritize, make sure you take care of the most dangerous situations first.

Let employees know what you are doing and that you are trying to make their workplace safer. Encourage them to be a part of the process. BUT – do not make the common mistake of jumping from what you think is a problem to “solving” the problem.

So even though this manual is about safety, let’s first take a look at *problem solving*.

PROBLEM SOLVING

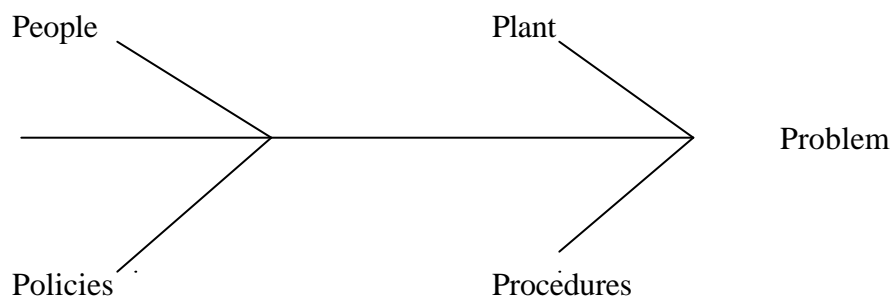
It's easy to confuse symptoms with problems. Sometimes people say, "Our biggest problem is absenteeism." While this may be true, it may also be true that absenteeism is a symptom of a larger problem – such as inconsistent application of existing rules or a drug and alcohol problem. Another "problem" frequently mentioned is, "my employees just don't care about anything, so how can I get them to care about safety?" These questions require you to look more deeply at possible root causes. Don't just jump from perceived problem identification to problem solving. If you have misidentified the problem to begin with, how effective will your "solution" be? Take time on the front end to explore ALL possible causes. Involve the employees. But do not pass comment on the ideas as they are laid out – you want everyone to participate without fear of humiliation.

One effective method used to come up with root causes is a "fishbone" diagram. The diagram looks like a fish skeleton. You can label the "bones" with different headings: the 4 P's – People, Plant, Policies, Procedures or the 4 M's - Manpower, Machines, Material, Methods. Either is effective.

Draw up a fishbone, put the problem or undesired effect (for example "absenteeism" or "employees don't care") at the "head" of the fish and then, looking at each heading, ask employees for their input – What do you think contributes to this problem involving people? Then ask the same thing regarding the plant, then the policies and then the procedures. You may be surprised at what things are listed.

Once you have the information, you are ready to start listing possible solutions to the problem. As you go, you may discover a "cause" on one of the "bones" that warrants its own fishbone diagram. That's O.K. – you want to solve problems at your facility, so just keep going until you solve the problem!

A Fishbone Diagram Using the 4 P's



Problem solving is a very important skill that can and should be developed. Safety-related problems that involve people's habits, behaviors and values can be tough to solve. That is why a systematic approach is valuable and beneficial.

INJURY AND ILLNESS REPORTING symptoms arising in work environ

(If you do not have a copy of the Recordkeeping Guidelines for Occupational Injuries and Illnesses, you need to get one. Call the Tennessee Department of Labor (615) 741-2793 or the Region IV office of the Bureau of Labor Statistics (BLS) (404) 347-4416 and ask for a copy of the Recordkeeping Guidelines for Occupational Injuries and Illnesses.)

1904.1 Size Scope: If your company had 10 or fewer employees AT ALL TIMES during the last calendar year you do not need to keep the injury and illness records unless notified by OSHA or BLS.

1904.5 Work-relatedness: A case is considered work-related if an event or exposure in the work environment either caused or contributed to the resulting condition. A case is considered work-related if an event or exposure in the work environment SIGNIFICANTLY aggravated a pre-existing injury or illness. Work-relatedness is presumed for injuries and illnesses resulting from events or exposures occurring the work environment except in these cases:

- present as a member of the general public
- symptoms arising in work environment that are solely due to non-work-related event or exposure
- voluntary participation in wellness program, medical, fitness or recreational activity
- eating, drinking or preparing food or drink for personal consumption
- personal tasks outside working hours
- personal grooming, self-medication for non-work-related condition, or intentionally self-inflicted
- motor vehicle accident in parking lot/access road during commute
- common cold or flu
- mental illness unless medical opinion states work related

Injury: Any wound or damage to the body resulting form an event in the environment. May result from a slip, trip, or fall. (instantaneous)

Illness: Includes MSDs (Musculo Skeletal Disorders), skin disorder, respiratory condition, poisoning, noise-induced hearing loss, heatstroke, etc. (over time)

An injury or illness is recordable if it results in one or more of the following:

- death
- days away from work
- restricted work activity
- medical treatment beyond first aid
- loss of consciousness
- significant injury or illness diagnosed by licensed health care professional

Day counts: (for days away or days restricted)

- do not include day of injury or illness
- count the number of calendar days the employee was unable to work (include weekend days, holidays, vacation days, etc.)
- cap day count at 180 days away and/or days restricted
- may stop day count if employee leaves company for a reason unrelated to the injury or illness
- if a medical opinion exists, employer must follow that opinion for recordkeeping purposes

Restricted work activity:

- a case does not involve restricted work activity if the restriction is limited to the day of the injury or illness
- production of fewer goods or services is not considered restricted work activity
- employers must consider vague restrictions from licensed health care professional (e.g. take it easy for a week) as restricted work activity if no further information is available

First Aid (this is an all-inclusive list):

- using nonprescription medication at nonprescription strength
- tetanus immunizations
- cleaning, flushing, soaking surface wounds
- wound coverings, butterfly bandages, Steri-Strips
- hot or cold therapy
- non-rigid means of support
- temporary immobilization device used to transport accident victims
- drilling of fingernail or toenail, draining fluid from blister
- eye patches
- removing foreign bodies from eye using irrigation or cotton swab
- removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means
- finger guards
- massages
- drinking fluids for relief of heat stress

You must post the OSHA 300A Summary of Work-Related Injuries and Illnesses form from February 1 to April 30 of the year following the year covered by the form.

New forms: OSHA 300 – Log of Work-Related Injuries and Illnesses; OSHA 301 – Injury and Illness Incident Report; OSHA 300A – Summary of Work-Related Injuries and Illnesses.

CALCULATING INCIDENCE RATES OF INJURIES, ILLNESSES OR LOST WORKDAYS

$N/EH \times 200,000 = \text{incidence rate}$

N = total number of injuries and/or illnesses (from the OSHA 300 log)

EH = total hours worked by all employees during calendar year

200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year)

ACCIDENT INVESTIGATIONS

You must conduct an accident investigation when (1) there is a fatality or (2) the accident results in the hospitalization of three or more employees.

It is a good idea to investigate all accidents – even those involving equipment only. Each “near-miss” should also be investigated to make sure it does not turn into an accident involving injuries next time.

When conducting an investigation:

- make sure you record the date, time and location of the accident
- write a description of the accident and the operations involved
- interview the injured employee and witnesses and gather other pertinent information.

After you have collected the information, use the fishbone diagram technique to find out “why” the accident occurred. You should formulate a corrective action so that the accident does not recur. In this way you can reduce repeated problems.

When you are listing possible causes of the accident make sure that you consider:

- employee training
- the job activity (was the person doing his/her “normal” job or some other task when the accident happened)
- was the person tired from excessive overtime or some other reason
- environmental conditions – lighting, temperature, noise, etc.; was the person wearing the correct PPE?

Ask for input from supervisors and other employees and stress that you are not out to punish people. Stress that you are trying to make their workplace safer.

EMPLOYEE SECTION

The last section of this manual is for your employees. The simple drawings illustrate common safety situations encountered in plants. An employee does not have to have read well (or even have to speak English well) to comprehend most of the drawings. It would be best to go over this section with your supervisors first and then let them use this section as a resource for helping their line operators.

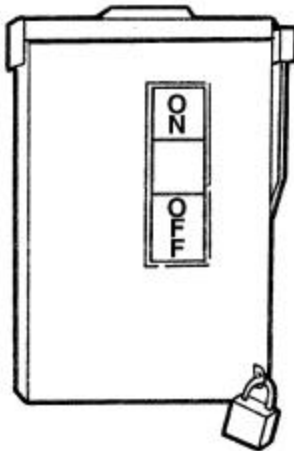
For a safety program to be most successful, you need the input and cooperation of the plant employees. They know what is and isn't safe, where the problems are, and how to short-cut the process. Enlist their aid. Get them involved and you will have a successful safety program.

FOR EMPLOYEES

- **REMEMBER – Decisions you make affect your safety, the safety of others, and the quality of the product you are working on**

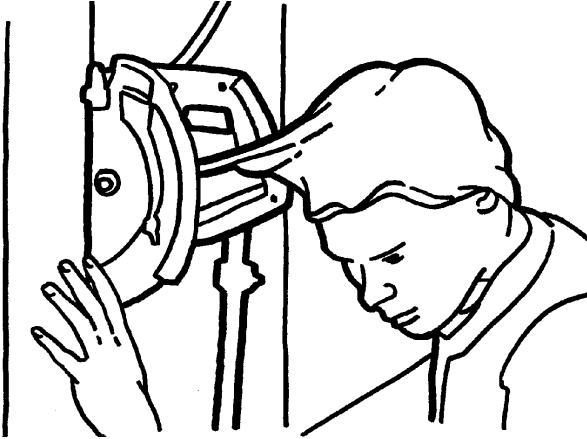
Working around powered equipment

- **NEVER OPERATE MACHINERY WITHOUT ALL THE MACHINE GUARDS IN PLACE!**
 - **WHY? – Because without the guards you can get killed or lose a hand or fingers, etc.**
- **NEVER ATTEMPT TO START UP A MACHINE THAT IS “LOCKED/TAGGED OUT” WITHOUT PERMISSION!**

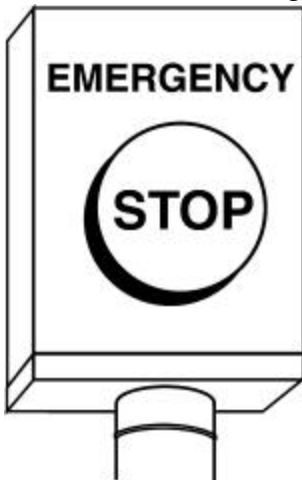


- Do you know what lockout/tagout means? Do you know what you are supposed to do when a machine has a lock or a tag attached to it?
Make sure power is shut off, excess energy drained, parts are lowered, excess or stored energy is relieved, employees are away from machine and so forth. IF YOU DON'T KNOW WHAT THIS STUFF MEANS – FIND OUT

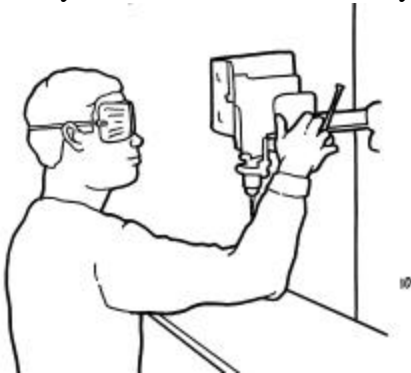
- Do not wear loose clothing, dangly jewelry or let long hair hang down around equipment that has rotating parts. It can pull your hair or gloves or jewelry or clothing into the danger area.



Know where the emergency stop button for your machine is



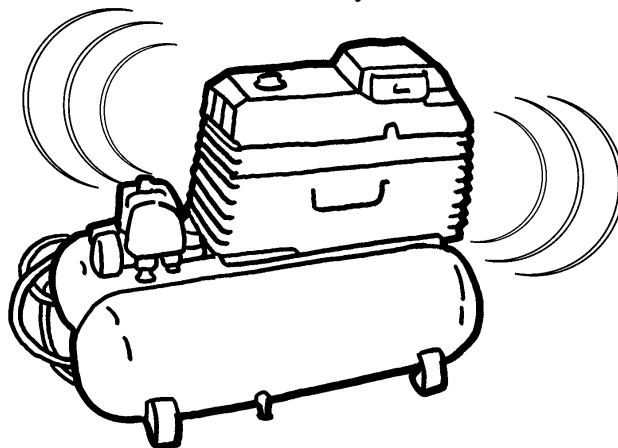
- Can you reach the controls for your machine?



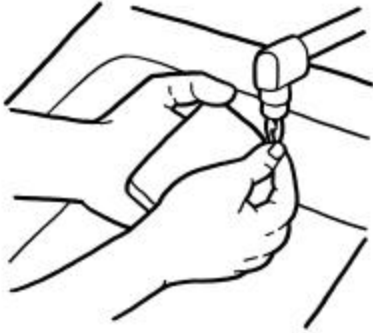
- Wear personal protective equipment that is assigned to you (gloves, goggles, ear plugs, etc.)
- Do you know what personal protective equipment you're supposed to be wearing?
- Do you ever see signs in the plant saying “**MUST WEAR EYE PROTECTION**” or “**MUST WEAR HEARING PROTECTION**” and then see people in that area without the eye or ear protection? IF the sign says do it – then do it.



- Are there loud machines that make your ears hurt?



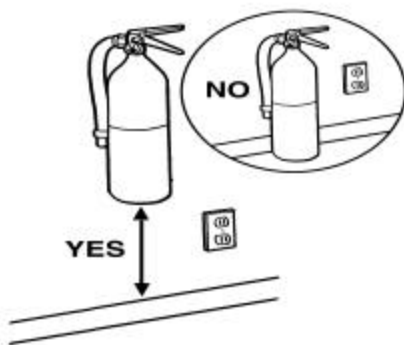
- Before eating, drinking or using tobacco products – **WASH YOUR HANDS!**



- Wash work clothes separate from other clothes.



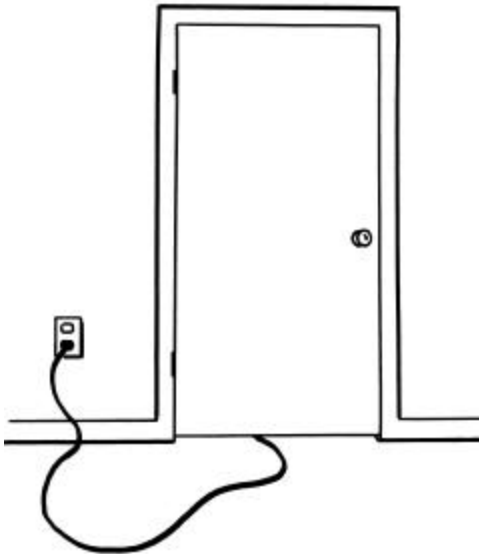
- Make sure fire extinguishers are hanging up on a wall where they are supposed to be.



- Does somebody check the fire extinguishers every month to make sure they are there and charged, ready to use?



- Do you ever see extension cords that go through doorways, across the floor, through holes, run behind machines or are attached to a part of the building, like the wall?

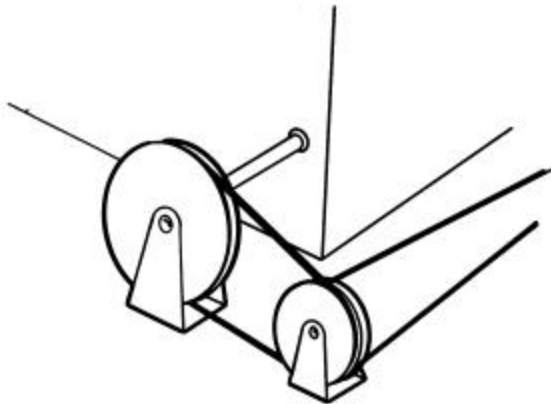


This is wrong. Extension cords should not go through doorways, etc.

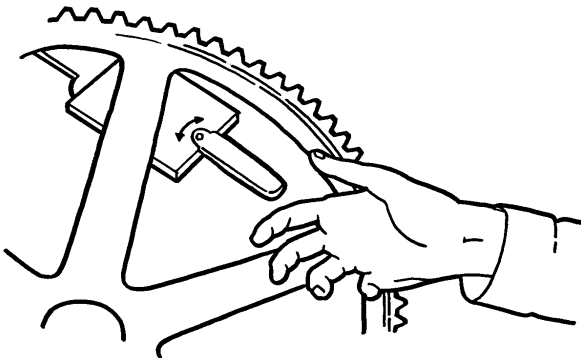
- Make sure containers of chemicals have a label that tells you what's in the container and also warns you about the dangers of that material.



- If there are sprockets or chains or pulleys or flywheels or rotating shafts – do they have a guard covering them?



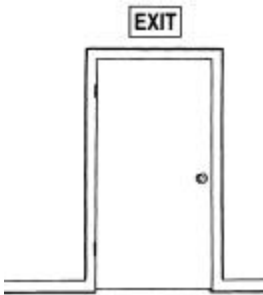
- Do you know of machines where you could get your hand or fingers or any other part of your body caught in moving parts?



- Do you work on a machine that doesn't work like it's supposed to? Are there broken parts or buttons that stick?



- Do you know where the nearest exit is? Is the path clear to the door? Is there a sign on the exit door that says EXIT?



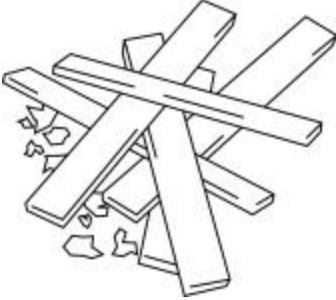
- Do you know what you're supposed to do if there is an emergency? Where do you go? Who do you report to? How do you know when to leave and when to go back?



- Are there wet, slippery spots on the floor in your area? If so, tell your supervisor.



- Are there piles of junk or trash by a work area? Tell your supervisor.



- Do people ever stack or store stuff in marked off areas where they're not supposed to? Tell your supervisor if you see this.



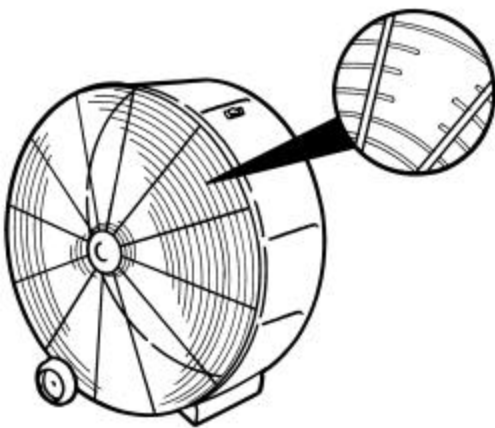
- Do you think you have enough light to do your job safely?



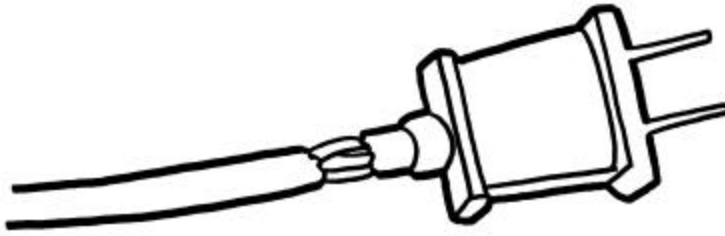
- Are there holes in the floor that you could make you fall or trip? Tell your supervisor if so.



- If you have fans, are there holes or gaps in the housing where you could stick your finger in? If so, tell your supervisor.



- Can you see bare electric wires sticking out of cords or machines? Tell your supervisor.



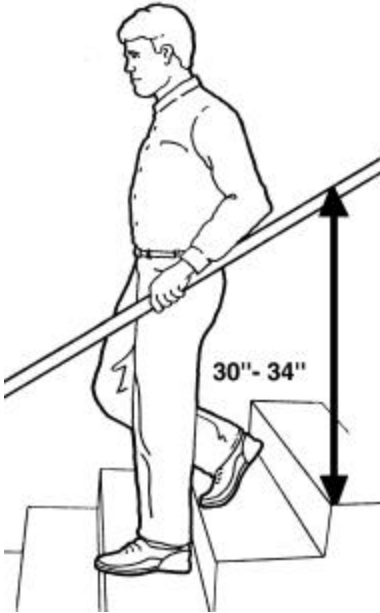
- DO NOT walk in front of a moving forklift. The driver might not see you.



- Don't try to lift too heavy a load by yourself – get help.



- Do you know what to do if there is an accident?
 - Who do you report information to?
 - How do you help the injured person?
 - Where are the emergency phone numbers?
 - What do you do if there is blood?
- Are there handrails on the wall when you walk up the stairs?



- Do you know where the first aid kit for your area is?



- Do you know where the nearest eyewash station is?



- Have you been trained about the chemicals you work with?



- Do you know where the Material Safety Data Sheets (MSDS) for the chemicals are?



- Do electrical outlets have covers on them, or are the covers broken or missing?



- If you have to wear a respirator, has someone trained you about how to use it, keep it clean, when to use, when not to use and so forth? Have you been medically evaluated?

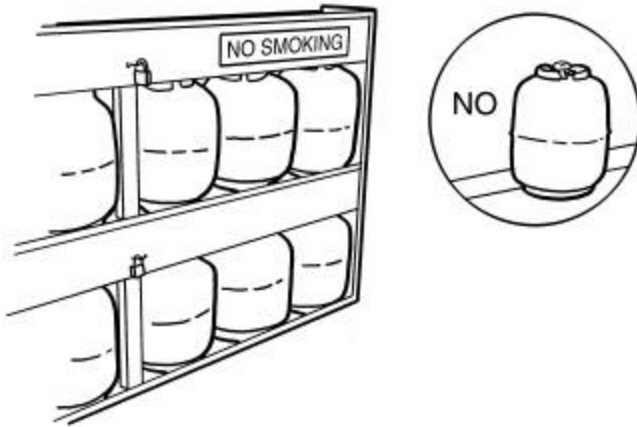


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- **DON'T SMOKE** when working around gasoline.

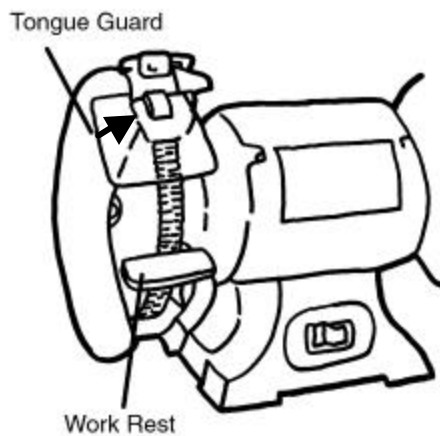


- Are unused propane tanks put in racks or in some way protected?

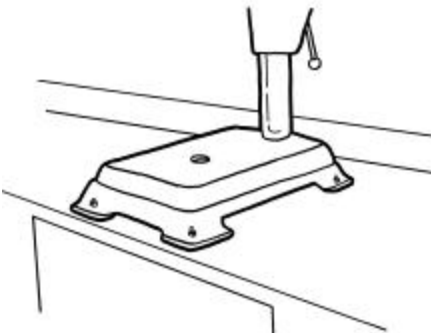


Maintenance area

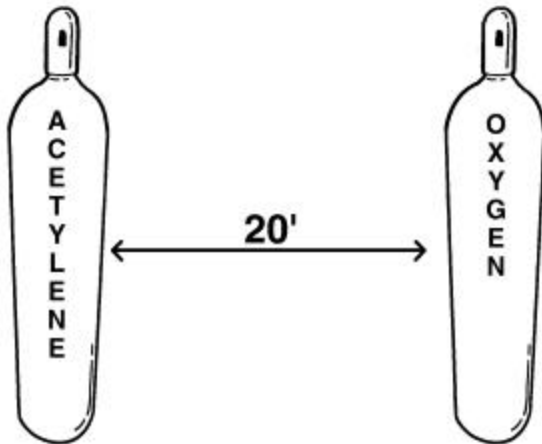
- Does the grinder have a work rest? Is it within 1/8" of the wheel?



- Does the grinder have a tongue guard? Is it within 1/4" of the wheel?
- Is the drill press attached to floor so it can't get tipped over?



- Are the acetylene and oxygen tanks close to each other? Closer than 20 feet?



- Are compressed gas cylinders standing up?



- Are they secured, for example, with a chain?

ALSO – When operating a tractor:

- Securely fasten your seatbelt if the tractor has a Roll Over Protection Structure (ROPS)
- Reduce speed when turning
- Avoid operating tractors near ditches, embankments and holes
- Do not permit others to ride
- Set the brakes securely when stopped
- Inspect your tractor regularly
- Use lockout/tagout procedures

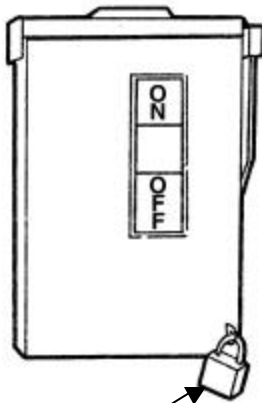
PARA LOS EMPLEADOS

- **RECUERDE** – Las decisiones que tome afectan su seguridad, la seguridad de los demás y la calidad del producto en el que está trabajando.
- Si usted observa esta condición no segura, informesela a su supervisor.

El trabajo en la proximidad de equipo con motor

- **¡NO OPERE NUNCA MAQUINARIA SIN TENER INSTALADOS TODOS LOS PROTECTORES!**
- **¿POR QUÉ?** – Porque sin los protectores se podría matar o perder una mano o los dedos, etc.

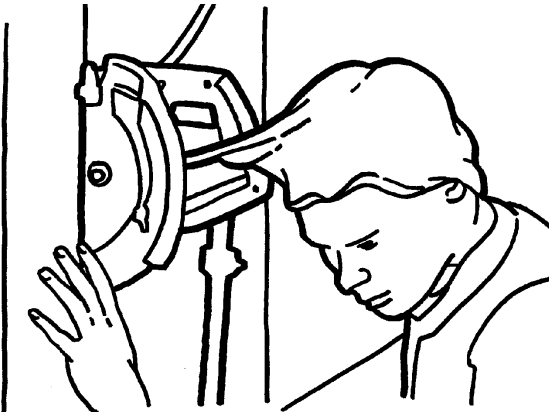
- **¡NUNCA TRATE DE ARRANCAR UNA MÁQUINA QUE ESTÉ “CON CANDADO/ETIQUETA” SIN PERMISO!**



observa

- ¿Sabe qué significa cuando una máquina tiene candado o tiene etiqueta? ¿Sabe lo que debe hacer cuando una máquina tiene candado o tiene etiqueta? Cerciérese de que la alimentación eléctrica esté apagada, que la energía excedente esté purgada, que las piezas estén hacia abajo, que se haya purgado la energía excedente o almacenada, que los empleados estén alejados de la máquina, etc. SI NO SABE LO QUE SIGNIFICA TODO ESTO, ¡PREGUNTE!

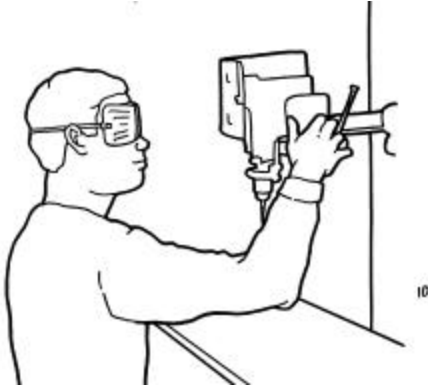
- Si la sierra produce un ruido de tono bajo, es posible que esté empujando la madera demasiado rápido. Retire la madera, espere a que la sierra alcance velocidad y comience de nuevo, lentamente. No empuje demasiado rápido.
- No use ropa holgada, joyería que cuelgue ni se deje suelto el cabello largo en la proximidad de equipo que tenga piezas giratorias. Una vez activada la unidad, puede jalarle el cabello o los guantes o joyas o la ropa a la zona de peligro.



- Sepa dónde se encuentra el interruptor de emergencia de su máquina.



- ¿Alcanza todos los controles de su máquina?



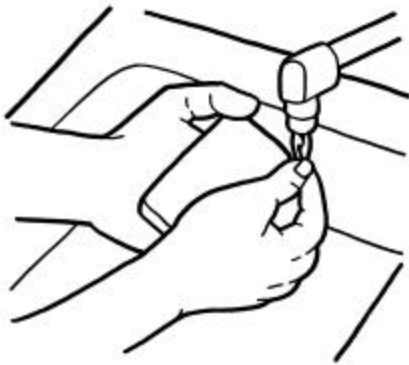
- Use el equipo de protección personal que le haya sido asignado (guantes, gafas protectoras, tapones para los oídos, etc.)
- ¿Sabe qué equipo de protección personal debe llevar puesto?
- ¿Alguna vez ha visto algún letrero en la planta que dice **“DEBE LLEVAR PUESTAS GAFAS DE PROTECCIÓN”** o **“DEBE LLEVAR PUESTA PROTECCIÓN PARA LOS OÍDOS”** y luego ve que la gente de esa área no lleva puestos los protectores para los ojos y oídos? Si el letrero dice que lo haga, ‘hágalo’



- ¿Hay máquinas que hacen mucho ruido y que le molestan los oídos?



- Si va a comer, beber o usar productos de tabaco, **¡LÁVESE LAS MANOS!**



- Lave su ropa de trabajo separada de su otra ropa.

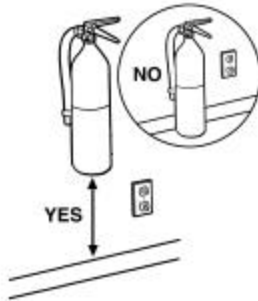


Trabajo

Casa

En la planta, busque lo siguiente:

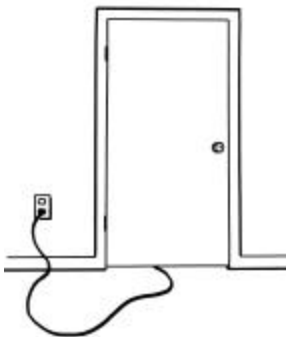
- Asegúrese de que los extinguidores de incendios estén colgados en una pared, donde deben estar.



- ¿Hay alguien que revisa los extinguidores todos los meses para cerciorarse de que están en el lugar correcto y que están cargados y listos para ser utilizados?



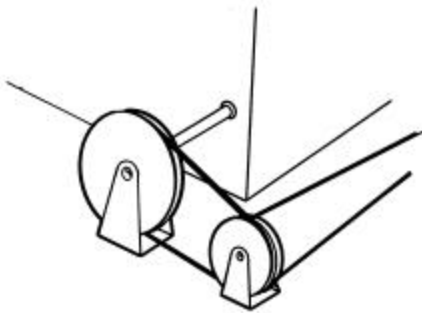
- ¿Alguna vez ha visto extensiones eléctricas que pasan por debajo de las puertas, que se extienden a través del piso, y a través de agujeros, que pasan detrás de las máquinas o que están fijados a alguna parte del edificio, como por ejemplo la pared?



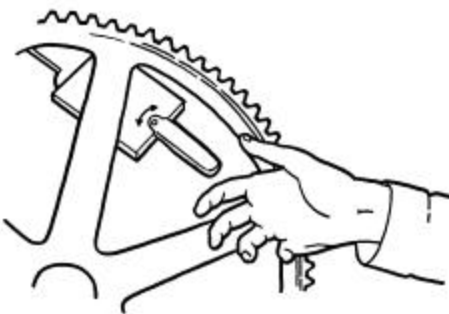
- Cerci6rese de que los envases de productos qu6micos tengan una etiqueta que indique el contenido del envase y que advierta sobre los peligros de ese material.



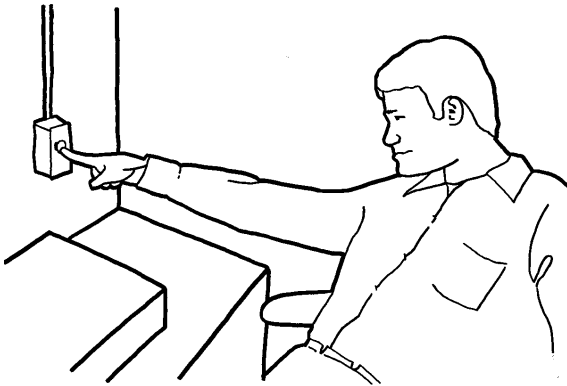
- Si hay dientes o cadenas o poleas o volantes o ejes giratorios, ¿tienen un protector que los cubre?



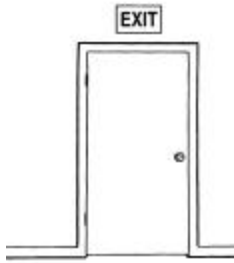
- ¿Sabe de alguna m6quina en la que se le podr6a atorar la mano o los dedos o cualquier otra parte del cuerpo entre las piezas mec6nicas?



- ¿Trabaja usted en alguna máquina que no funciona como es debido? ¿Tiene piezas rotas o botones que pican?



- ¿Sabe usted dónde está la salida más cercana? ¿Hay paso libre hasta la puerta? ¿Hay alguna señal sobre la puerta que diga “EXIT” o “SALIDA”?



Salida

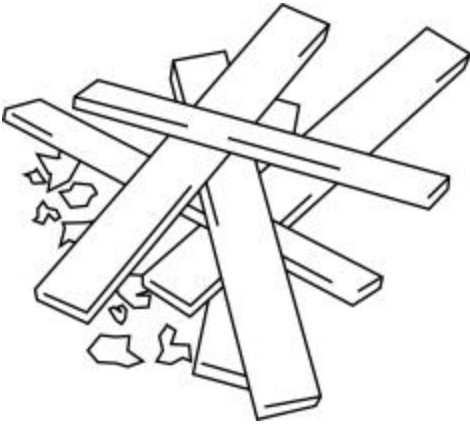
- ¿Sabe usted lo que debe hacer en caso de una emergencia? ¿A dónde debe ir? ¿A quién se reporta? ¿Cómo sabe cuándo irse y cuándo regresar?



- ¿Hay lugares mojados, resbaladizos en el piso de su área?



- ¿Hay montones de desechos o basura cerca de alguna área de trabajo?



- ¿Apila o guarda la gente cosas que no debería en lugares marcados donde no se debe hacer?



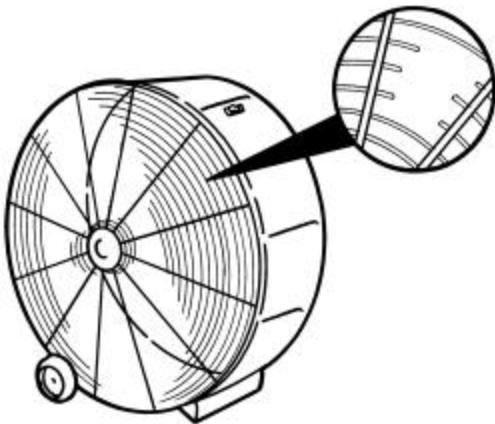
- ¿Cree que tiene suficiente luz para hacer su trabajo sin peligro?



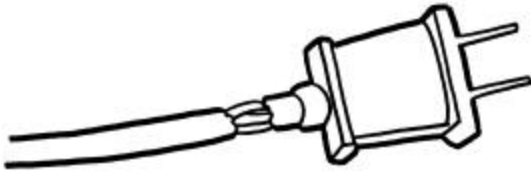
- ¿Hay hoyos en el piso que pudieran ocasionarle que se tropiece o se caiga?



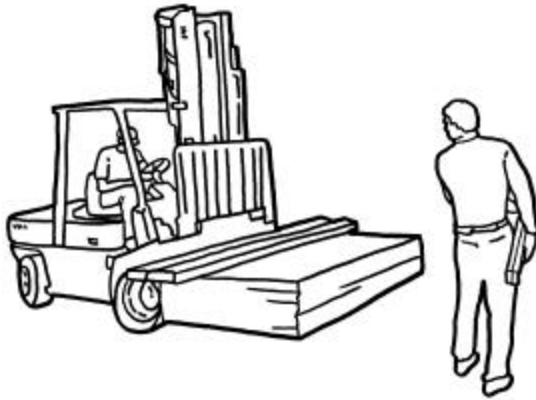
- Si tiene ventiladores, ¿hay hoyos o espacios en la rejilla por donde podría introducir un dedo?



- ¿Hay alambres desnudos expuestos en los cables o las máquinas?



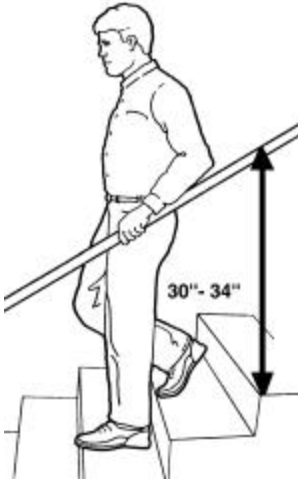
- NO camine delante de un montacargas en movimiento. Es posible que el operador no lo vea.



- No trate de levantar algo demasiado pesado usted solo, pida ayuda.



- ¿Sabe usted qué hacer si ocurre un accidente?
 - ¿A quién debe reportar la información
 - ¿Cómo debe ayudar a la persona lastimada?
 - ¿Dónde están los números de teléfono de emergencia?
 - ¿Qué debe hacer si hay sangre?
- ¿Hay pasamanos en la pared a lo largo de las escaleras?



- ¿Sabe usted dónde está el botiquín de primeros auxilios de su área?



- ¿Sabe usted donde se encuentra la estación más cercana para lavarse los ojos?



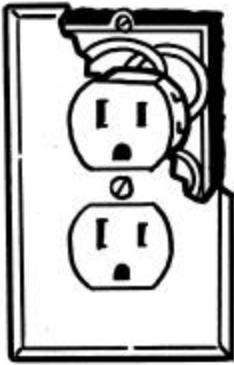
- ¿Le han dado capacitación sobre los productos químicos con los que trabaja?



- ¿Sabe dónde se encuentran las Hojas de Datos de Seguridad del Material (*Material Safety Data Sheet*, MSDS) de los productos químicos?



- ¿Tienen tapas todos los enchufes eléctricos, o están rotas o faltan las tapas?



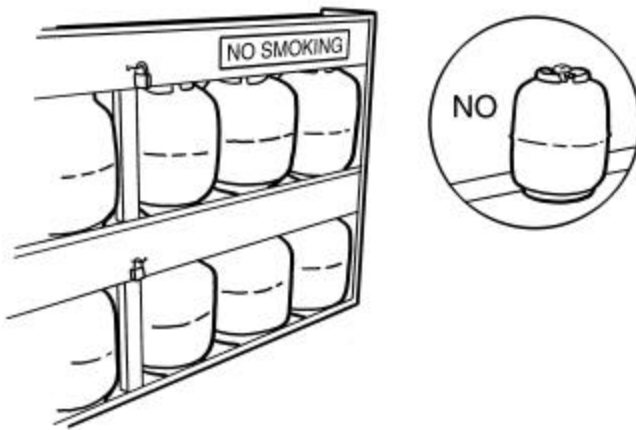
- Si usted tiene que usar respirador, ¿le ha enseñado alguien cómo usarlo, cómo limpiarlo, cuándo usarlo, cuándo no usarlo, etc.?



- **NO FUME** cuando esté trabajando en la proximidad de gasolina.

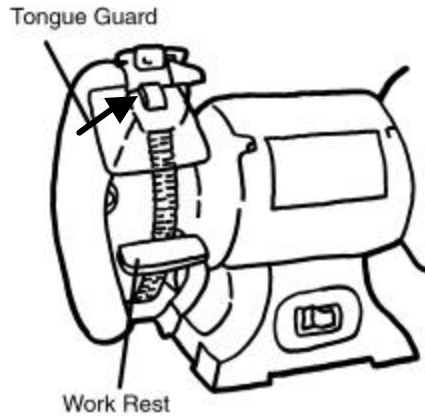


- ¿Están protegidos de alguna manera los tanques de gas propano que no se están utilizando?



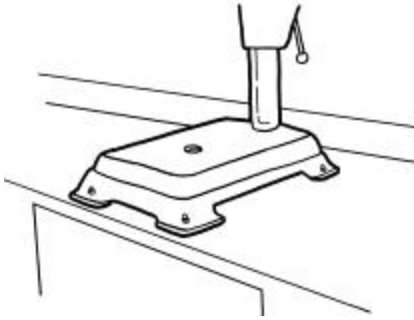
Área de mantenimiento

- ¿Tiene soporte el molinillo? ¿Se encuentra a menos de 3 mm (1/8 de pda.) de la rueda?

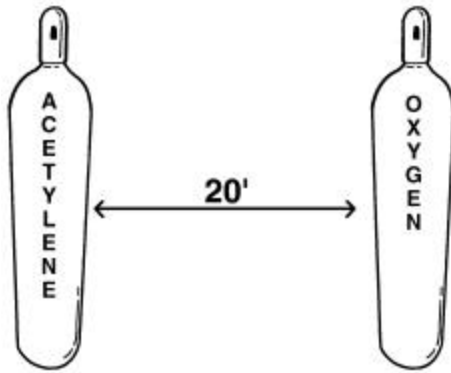


- ¿Tiene protector de lengüeta el molinillo? ¿Se encuentra a menos de 6 mm (1/4 de pda.) de la rueda?

- ¿Está fijado al piso el taladro de banco para que no se vaya a caer?



- ¿Están cerca uno del otro los tanques de acetileno y de oxígeno? ¿A menos de 6 m (20 pies)?



- ¿Están parados los tanques de gas comprimido?



- ¿Están asegurados con, por ejemplo, una cadena?

TAMBIEN – Al conducir un tractor:

- Asegurese el cinturon de seguridad si el tractor tiene ROPS (Sistema de Proteccion Contra Volcaduras)
- Reduzca la velocidad al dar vueltas
- Evite operar tractores cerca de zanjas, presas y pozos
- No permita otros pasajeros
- Pegue los frenos seguramente cuando para el tractor
- Inspeccione su tractor regularmente
- Procedimientos de cierre forzoso/bloqueo