MACHINE GUARDING RESPONSIBILITY

Why Use Safeguards?

Do you know why machine guards on your machine are important to you and your safety? The most important reason is because your hands, arms and other parts of your body are vital to you, and we all want to protect our physical body from any harm right? Right! This is the reason that your company has taken the time to educate you with this orientation about machine safe guards. Operating a moving part machine with a safety guard will prevent the operator's hands, fingers, and body from serious injury.

Any individual who operates equipment must be authorized and trained. Your license means you have received proper training and are capable of safely operating a machine. You are expected to have the maturity, training and responsibility to operate the

machine efficiently and safely. Don't take this responsibility lightly. A good operator knows machine guarding is extremely important while operating the machine and, that is your first step to safety.

What You Must Know

It is crucial to understand why safe guards are to be used on machines. In addition to operators, maintenance workers must be trained and taught how to use the safe guards. An operator or maintenance worker must be informed as to the location of the safe guards on the machines. They should know the hazards from which they are being protected as well as how and why the guards protect them. An operator or maintenance worker should be trained to remove safe guards from the machines and to understand when guards may be removed. Workers need to be trained in procedures to follow if they notice guards are

damaged, missing, or inadequate. An operator or maintenance worker should be provided with a dress code. For example; no loose fitting clothing or jewelry. These items could easily be caught in the machines. Safety is everyone's responsibility.

Maintenance Needs

Maintenance workers need to maintain a list of the dates that machines have been serviced. Maintenance workers must know when to LOCK OUT the machines. This is extremely critical when repairs are being done on the machine. Maintenance workers should be using safe equipment when doing repair work, and they should insure their equipment itself is properly guarded. You are more productive when working safely and obeying safety rules. All we ask is for you to perform your job professionally and safely.

Engineering Principles

Let's review a few engineering principles, so you will have the knowledge to make your own decisions and exercise good judgment. The first condition for maintenance workers is to be aware of guarding during maintenance. This is perhaps the most hazardous, and if not aware of certain procedures it can result in large numbers of accidents and injuries. The machine must be put in a state where; if making an unexpected movement that could cause an injury, it would be reduced to a practical minimum. The procedure of this purpose is the power lock out.

The second condition is the zero-mechanical state, where every power source of the machine than can produce movement has been locked off. The ZMS concept does not apply only to foundry equipment, but it also applies to all types of equipment used in industries.

Responsibilities

The Manufacturer

The manufactures should provide information, furnish operation guidelines, and maintenance instructions with the equipment.

Specific operating and maintenance instructions need to be outlined in the maintenance and operating manuals to aid personnel in the safe operation and maintenance of equipment.

The Employer

The employer shall be responsible for monitoring employees' activities engaged in troubleshooting and maintenance and repair of machines in an isolated or hidden area. The

employer should also be aware of the equipment, which could have mechanical defaults and possible injuries to the safety of the operators. The operator must be placed in an intensive training program of ZMS instructions.

It is important to teach the operator that it can be very dangerous to enter a machine unless every requirement of ZMS is satisfied. Persons must not place any part of their body in the path of possible moving machine members during set up, lubrication, adjustments, installation or maintenance. Operators must be trained to respect the possible danger of machine motions. Operators have to be trained to be aware of possible defects or malfunctions on his machine guards.

It is the responsibility of the employer to recommend a start up procedure that will minimize hazards. The employer will also set up a shut down procedure before allowing any inspection, adjustment or maintenance covered by the standard requirements of ZMS.

Employers should also post written policies for ZMS to follow. Employers should post procedures for placing machine "A" in zero mechanical state where all employees can read and follow daily. OSHA Act has a major goal to all manufactures to have a machine guard on all machines and equipment used to prevent hazardous injuries to employees.

Each manager should develop a written program policy with specific rules and procedures. For example, each initiator and valve "Manual Override" must be tested to confirm that all power sources have been disconnected and that all remaining pressure from the machines has been reduced to prevent unexpected motion of machine members. The operator must give particular attention also to the defected valves and closed center valves.

Plated "Caution" and "Warning" signs should be posted for operators. If the machine you are using has a machine guard against hazardous injuries, it will save the company a great deal of money in the long run. Guarding terminology must be defined and

taught to employees. The lack of understanding guarding terms can lead to accidents and injuries. Built in guards are safety guards that are attached to the machine prior to purchase.

OSHA Check Lists

OSHA Compliance Check Lists for guarding machines is a useful system that prevents injuries. Checklist lists are provided for all machines and equipment used. For each unit machine, it will list the point of operation and power transmission components. It should state if the machines are safety guarded or not. If machine is guarded, does it meet OSHA requirements? What type of guarding is used? Enclosure? Fencing? Location? Most production machines will require some form of enclosure of the hazard points to comply

with OSHA requirements.

Noise Protection

Noise controls are other important safeguards to be used on machines. They help absorb or reflect sound waves, thus protecting the employee's hearing. For noise reduction, manufactures have built home made guards that can be designed as a barrier for noise as well as a barrier against personal injury.

Machines can produce only it they are used correctly, and they are used correctly only when all guards and safe guards are in place. A complete guarding program is essential for any company. It prevents accidents to operators and machines, and thus facilitates production goals.

CLASSIFICATION OF GUARDS

Four main classifications of guarding

1. Enclosure guards

   A. Fixed enclosures
   B. Adjustable enclosures

2. Interacting guards

   A. Enclosure or safe guard with electrical or mechanical interlock
   B. Barrier with an electrical or a mechanical interlock activating a brake
   C. Electronic other types. Field or beam connected with operating and stopping mechanism

3. Automatic guards

   A. Moving barrier connected to operating mechanism of machines
   B. Removal device connected to operator, and operating mechanism of machine
   C. Special jigs or holding devices

D. Automatic pressure, release devices

4. Remote control. Placement, Feeding, and Ejection

A. Two hand tripping devices
B. Automatic or semi-feed
C. Special jigs or holding devices
D. Special hand tools and dies
E. Special ejecting devices

A hazard creating motion or action may be guarded against in several ways, such as guarding, rotation, reciprocating, or transverse motions.

The techniques of guarding against various actions when using tools to perform cutting, bending, or punching, would be to use the guarded motion approach. The guarded motion approach is to drive or power the tool only when using it.

When Operating a Machine

Here are some requirements that you need to be aware of when operating a machine. First, all machines, parts of machines, or component parts that you are using which create hazards are required to be safety guarded. There also has to be an opening through guards or enclosures within two inches of the moving part to preclude passage of any objects one-half inch in diameter. All operators should have free access to the power control buttons in case of an immediate emergency. Machine power controls shall be kept up in a safe operating condition. The machine power controls shall be located and installed at locations where they can't operate from accidental contact, with objects or parts of the body. They should be located near the operator's working position. Power control buttons and switches will be color -coded:

Start – black

Run – green
Inch - silver
Emergency stop - red (palm type color)
Cycle stop or auto stop - yellow or red

Locking and Tagging

All power control buttons and switches will be properly identified to its function and purpose. When working on electrical equipment such hazards can occur, such as, unintentionally starting a motor. This is why it is important for the operator to make sure the circuit is opened at the switch box. The switch pad should be locked in the OFF position and tagged.

The tag should contain a description of the work to be done to that piece of equipment, the name of the person working on it, and the department involved. All this

information must be written on the tag to enhance positive protection. Remember supervisors, train your staff right, safely, and efficiently. Monitor all employees' safety requirements and day to day check ups on your performance. Anyone can write up a warning tag saying "in repair", but this is not the way for positive, reassuring protection from locking out equipment.

Training of Maintenance Personnel

The supervisor should give detailed procedures to be followed, and he should insure that maintenance crews are supplied with and use the right protective equipment.

In order to prevent accidental grounding and possible sever injury, maintenance personnel must constantly be on guard when working around electrical equipment and circuits. The supervisor must drill lock out procedures to their maintenance personnel, and

it is up the supervisors to assure the procedure is being carried out. Supervisors should be sure employees have the necessary keys, locks and arrangements. Each lock should have only one key.

Conclusion

Employee training is vital. The safety program should include detailed training of all employees who work with electrical equipment. Employees need instructions on use of machines and knowledge of the warning signs, guards and other protective devices. Also, they should have a first aid training course in mouth-to-mouth resuscitation and external cardiac massage. Supervisors should give training on an existing or electric hazard machine. Employees need to be encouraged to report any type of accident or injury immediately. Also, when equipment is defected and needs to be repaired or replaced.

Being licensed and trained means you are capable of safely operating a guarded machine. Once you are trained, you have the responsibility to keep you and your co-workers safe.