Weekly Safety Briefings

Week 12: March 18th – 22nd, 2024

Machine Guarding

Introduction

Moving machine parts create workplace hazards and potential machinery related injuries, making machine guards vitally important. This week we will discuss the general requirements, types of hazardous machinery motion and types of guarding. After this week you should have the tools needed to assess the standard of guarding in your workplace.

Monday- General Requirements

OSHA's requirements for machine guarding are found in 29 CFR 1910 Subpart O, machinery and machine guarding. The general requirement states that one or more methods of machine guarding must be used to protect operators and other employees from hazards, including those created by the point of operation, in running nip points, rotating parts, flying chips and sparks.

Tuesday – Types of Hazardous Mechanical Motions

Identifying hazards is the first step toward protecting workers and promoting safety in the workplace. Understanding the types of hazardous mechanical motions will help make these determinations. The basic types of hazardous mechanical motions and actions are:

- Rotating: Even smooth, slowly rotating shafts can grip clothing and force an arm or hand into dangerous position.
- Reciprocating: Repetitive up and down or back and forth action that can strike or catch a worker between a moving and a stationary part.
- Transverse Action: Movement in a straight, continuous line. Moving parts can catch or strike a worker in a pinch point or shear point.
- Cutting: Hazards involve rotating, reciprocating or transverse motion, where fingers, head and arm injuries can occur and where flying chips and scrap material can strike a worker's eyes or face.
- Punching: Results when power is applied to a slide for the purpose of blanking, drawing or stamping metal or other materials. The danger occurs where the stock is inserted, held or withdrawn by hand as with power presses.
- Shearing: Involves applying power to a shear or knife to trim or shear materials such as metal. The danger is where the stock is inserted, held and withdrawn, as with hydraulically or pneumatically powered shears.
- Bending: Results when power is applied to a slide to draw or stamp metal or other material. The threat lies where the stock is inserted, held and withdrawn, as with equipment such as power presses.

Wednesday – Requirements for Safeguards

Machine safeguards must meet these minimum requirements:

1. Prevent contact with dangerous moving parts.
2. Be secure and not easily removed.
3. Protect from objects falling into moving parts.
4. Create no new hazards.
5. Does not impede a worker from performing their job quickly and comfortably.
6. If possible, the guard should allow the machine to be lubricated without removing the guard.

Thursday – Types of Safeguarding

The type of operation, the method of handling, the physical layout of the work area and the production requirements will help determine the best method for safely and effectively guarding the machine. There are five general classifications:

1. Guards
    a. Fixed – Simple and permanent.
    b. Interlocked – automatically shuts off or disengages a machine when the guard is opened or removed.
    c. Adjustable – can accommodate various equipment or material sizes.
    d. Self-adjusting - Allow the opening of the barrier to be determined by the stock ensuring the opening is only big enough for the stock.
2. Devices
    a. Presence sensing: Could be photoelectrical or use radio frequency that is part of the machine circuit. When the field is broke, the machine will stop.
    b. Electromechanical sensing: uses a probe or contact bar that descends to a predetermined distance when the operator initiates the cycle. A disruption prevents the machine from cycling.
    c. Pullback: Uses cables attached to the operator's hands, wrists and/or arms pulling the operator out of harms way.
    d. Restraint: Allows the operator's hands to travel only in a predetermined safe area.
3. Safety Controls: such as pressure-sensitive body bars can quickly deactivate a machine. Also two handed controls require both hands and constant pressure on the controls for the machine to operate.
4. Gates: Movable barriers that protect the operator at the point of operation.
5. Location/Distance: Placing a machine in an infrequently traveled area or where its dangerous moving parts are not accessible can keep employees safe if well evaluated.

Friday – Open Discussion

Now that we've discussed the type of hazards presented by machinery motion, the basic requirements for guarding and the different types of guarding, let's discuss guarding in your workplace.

- Do you have adequate guarding in your workplace?
- Does the guarding meet the criteria we discussed earlier this week?
- Is there any equipment that is not currently guarded that you feel should be?