Machine Guarding Part 2: Precautions

Unguarded machines can amputate fingers, hands, entire limbs and even kill. Safety regulations require machine guarding. You can avoid injuries and penalties by installing, using and maintaining machine guarding and following safe work practices.

NOTE: ALL hazards require your attention, but the focus of this job aid is the physical hazards presented by machine motion.

What Are Machine Guards?

A machine guard is a physical barrier that prevents people from being exposed to machine hazards. Machine guards do NOT eliminate hazards.

The closer people are to the hazard, the smaller the guard opening must be.

Where people feed materials into the machine by hand, the guards on feeders must separate workers from the point-of-operation, or danger area, where machines perform work.

Machine guards must:

- Protect people from contacting machine hazards
- Be sturdy enough for regular use and machine malfunctions
- Allow people to maintain and adjust them

Types of Machine Guards

Sometimes, manufacturer-installed guarding is sufficient. Other times, employers need additional guarding to protect workers. Employers perform machine risk assessments and choose supplemental safeguards to reduce risk and enhance production. If possible, the original equipment manufacturer should review and approve the safeguard design. Once safeguards are in place and anytime processes change or there is a safety incident, employers will reassess the risk and make changes, as needed.

Fixed Guards

A fixed guard is a part of the machine that encloses or makes dangerous machine parts unreachable. A fixed guard is not dependent upon moving parts to perform its intended function. It should require special tools for removal and is not designed for easy or frequent access to the parts beyond it. A fixed guard is usually preferable to all other types because its simplicity.

Interlocking Guards

An interlocking guard shuts off or disengages power and prevents a machine from starting up or beginning a cycle when the guard is open. Replacing the guard should not automatically restart the machine. All movable guards (such as doors) should be interlocked to prevent unprotected access to hazards.

Guarded by Location

To be guarded by location, hazards must be unreachable based on where they are located. Employers may accomplish this by positioning operation areas away from hazards or by installing barriers with limited, locked entry. Some regions don't require guards when the distance to hazardous moving parts is greater than 8 feet (2.5 meters) above floors, walkways, and other walking and working surfaces. Employees must follow lockout/tagout procedures if anyone or anything must pass between the guard and hazardous moving parts.

Safeguarding Devices

Safeguarding devices may use sensors to detect or prevent inadvertent access to a hazard. Safeguarding devices may detect intrusion into dangerous areas, such as the point-of-operation and/or ensure personnel are in safe locations before the machine cycles. Safeguarding devices must not unlock guards or allow access until the machine is in a safe state, such as when it stops moving. When the machine stops, normal operation will not resume without a manual reset from a safe area. Examples include photoelectric sensors, two-hand controls and gates.

Work Practices

Work practices help us ensure that guards are effective and further reduce the chance that people will contact hazardous moving parts.

- Remember that equipment may begin running unexpectedly
- Practice good housekeeping to remove slip, trip and fall hazards
- Report safety concerns and suggestions
- Routinely check machine guards and safety features
- Block unsafe areas and report missing or damaged guards
- Use appropriate tools for feeding and removing materials
- Secure or remove loose or dangling clothing or items that may become entangled in machinery
- Wear the personal protective equipment (PPE) required by your employer

Lockout/Tagout

Lockout/tagout procedures are designed to control hazardous energy when servicing and maintenance activities require that guards must be removed, bypassed or otherwise defeated. Use your employer's lockout/tagout procedures during servicing and maintenance activities. Never reach around, through or beyond the plane of a guard into the machine operating area without first performing lockout/tagout procedures.

Emergency Stop Devices

Emergency stop devices are designed for people to use as a reaction to an incident or hazardous situation. Activating an emergency stop will stop hazardous motion as quickly as possible. Emergency stopping is abrupt and can damage machines, so do not use it as a routine operator control.