

Machine Safety

Some of the most severe and crippling accidents occur from employees who operator and maintain machinery. Accidents can occur quickly and can be fatal at times. Amputations, lacerations, crushing injuries, and abrasions have resulted when the employee was exposed to unguarded or inadequately guarded machinery. Any machine part, function, or process, which may cause injury, must be safe guarded. Dangerous moving parts in these basic areas require safeguarding:

- The point of operation where work is performed
- In running nip points
- Pinch points
- Power transmission apparatus: all components of the mechanical system which transmit energy to the part of the machine performing the work. These components include flywheels, pulleys, belts, connecting rods, couplings, cams, spindles, chains, cranks, and gears.
- Other moving parts: These can include the movement of rotating members, reciprocating, and transverse moving parts, as well as feed mechanisms and auxiliary parts of the machine.

Rotating motions can be dangerous when workers clothing, hair, or body parts can make contact with the machine. Rotating motion is found in such equipment as collars, couplings, cams, clutches, flywheels, shaft ends, spindles, and meshing gears.

Reciprocating motions may be hazardous because, during the back-and-forth or up-and-down motion, a worker may be struck or caught between a moving and a stationary part.

Transverse motion continues in a continuous line that may strike or catch an employee in a pinch or shear point between a moving and fixed object.

Machine guards are used in operations when cutting wood, metal, or other materials with band saws, circular saws, boring or drilling machines, lathes, or milling machines. Machinery used for punching operations such as power presses, notching machines, and punch presses need to be guarded because material must be inserted by hand or held in place by hand. Machines that perform shearing or bending actions may be mechanical, hydraulically, or pneumatically powered. Hazards exist when the material is inserted, held, and withdrawn at the point of operation.

Safeguards on machines must be installed and maintained to protect workers against mechanical hazards. Safeguards must meet these requirements: Prevent contact with moving parts, be firmly secured to the machine, prevent objects from falling into moving parts, does not create a greater hazard, does not interfere

with job being performed, and allows for safe maintenance without removing the guard for lubricating the machine.

It is important to understand how to properly use the machinery in your area and how the safeguards provide protection. Training must include hands-on training to; identify the hazards with each machine to be used, how to use the safeguards and why, how and under what circumstances safeguards can be removed and by whom, and what to do if a safeguard is damaged, missing, or unable to provide adequate protection. Training is necessary for employees and or students that will operate and or perform maintenance, when new or altered safeguards are installed or a new machine or operation is introduced.

Machine guards are in place to protect workers from accidents occurring. With each machine there are procedures that must be followed to maintain safe operation. Contact the supervisor or instructor to verify the operation or how to operate equipment when in doubt. If guards are missing, damaged, or defective, report it to your supervisor or instructor immediately. Personal protective equipment may be required to wear when operating certain machinery such as safety glasses when there is a hazard of splash or flying debris, gloves for rough handling material, and ear plugs for loud equipment. Rules also apply of what not to wear when operating some equipment such as; loose clothing, jewelry, bracelets and rings. Loose clothing might become entangled in rotating spindles or other kinds of moving machinery. Jewelry can catch on machine parts and lead to serious injury by pulling a hand into the danger area or electrical shock may occur when operating around electrical sources.

Even the most intricate safeguarding system is not effective in protection unless the worker knows how to use it and why.

