The Hanover Insurance Group®

Hanover Risk Solutions

Machine Guarding Checklist

Location _____

Supervisor _____

Date _____

Audit Performed by _____

A. General Requirements for Machines and Machine Guarding

	YES	NO	NA	COMMENTS
1. Machine guards prevent workers' fingers, hands, arms and other body parts from making contact with moving parts				
2. Guards are firmly secured and not easily removable				
3. Guards permit safe operation of the machine and do not create additional hazards				
4. Machine controls and e-stops within easy reach of operator				
5. Procedure established to ensure machine is shut down before guards removed				

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B. Guarding of Mechanical Hazards

	YES	NO	NA	COMMENTS
1. Point of operation guards provided and in place				
2. Gears, sprockets, pulleys and flywheels guarded				
3. Belts and chain drives guarded				
4. Exposed set screws, key ways, collars and similar guarded				
5. Guards provided for any other hazardous moving part of machine				

C. Evaluation of Non-Mechanical Hazards

	YES	NO	NA	COMMENTS
1. Noise measurements taken when necessary				
2. Chemical substances used in operation evaluated				
3. Electrical cords and connectors in good condition				
4. Personal protective equipment available when necessary				
5. Operator dressed safely for the job				

D. Training

	YES	NO	NA	COMMENTS
1. Workers trained in the recognition of machine hazards and the use of safeguards				
2. Lockout/tagout training provided, where necessary				
3. Electrical safety related work practices training provided, where necessary				
4. Personal protective equipment training provided, where necessary				

Notes

General Requirements for Machines and Machine Guarding

A.1 Guards should be designed to prevent contact with any machine part, function or process that could cause injury.

A.2 Guards should be made of durable material that will withstand the conditions of normal use and should not be able to be easily removed or tampered with.

A.3 Machine guard design should allow normal operations to occur without creating any additional hazards.

A.4 Controls and E-stops need to be in easy reach.

A.5 Machine design should allow for routine lubrication and adjustment without removal of safeguards. When safeguards must be removed safe procedures must be developed to insure that the machine has been shut down. A lockout/tagout procedure may be necessary.

Guarding of Machine Hazards

B.1 Point of operation is the point where work is performed on the material such as cutting, shaping, boring or forming of stock.

B.2 Rotating parts, including smooth shafts, can catch clothing or skin and pull body parts into dangerous areas or cause other injury.

B.3 Belts and chain drives create in-running nip point hazards where the belt or chain contacts the pulley or sprocket. Guards must be designed to ensure no contact.

B.4 The normal hazards associated with rotating parts increase with projections like screws, key ways, etc., and must be guarded to prevent contact.

B.5 Reciprocating and transverse motions of machine parts are examples of other hazards which require guarding—including hazards to non-operating employees.

Evaluation of Non-Mechanical hazards

C.1 Some machines are capable of producing noise levels which require hearing protection. A noise survey may be required.

C.2 Cutting fluids, coolants and other substances used in machine operations must be evaluated before use to determine PPE and disposal requirements. The MSDS/SDS, container labels or other product information should be used to determine if additional precautions are necessary.

C.3 Replace damaged electrical equipment, deteriorated wiring and look for openings in covers that expose wiring.

C.4 A hazard evaluation of the tasks that machine operators perform is helpful in determining if personal protective equipment is necessary.

C.5 Loose fitting clothing and jewelry should not be worn by machine operators. Long hair can become entangled in rotating parts.

Training

D.1 Workers must be made aware of the hazards of machines they are operating and the importance of maintaining guards and PPE.

D.2 Training is required for all workers authorized to apply lockout/tagout devices. Training is also required for workers who are affected by the lockout/tagout activities.

D.3 Workers who are exposed to energized electrical circuits operating 50 volts or more must receive training based upon their assigned tasks and level of expertise. This includes workers who operate electrical disconnects (switches/circuit breakers).

D.4 Workers must received adequate training on the personal protection equipment selection and use. An additional personal protective equipment evaluation of the workplace (documented) is also required.

Training Guidelines

An important step in machine safeguarding—a step which is often overlooked—is providing safety instruction and training on the various types of equipment the worker is expected to operate and the safeguarding the worker is expected to use.

At a minimum, this education should include:

Discussion of hazardous exposures and control measures:

- Hazardous motions (rotating, reciprocating, transverse)
- Hazardous actions (cutting, bending, drilling, punching, etc.)
- Potential of flying or ejected material or parts
- Effective safeguarding methods or other control measures (automatic/semi-automatic feeding/ejection, guarding by location/distance, etc.)
- Ergonomics (awkward posture, vibration, repetitive motion, forceful exertion, etc.)
- Fire or combustion hazards (dust, lubricants, hot processes, hydraulic fluid, etc.)
- Appropriate personal protective equipment and clothing
- Health hazards
  - air quality (dust, fumes or smoke from certain metals, mist from fluids, etc.)
  - noise and vibration
  - metalworking fluids (danger to skin, lungs, etc.)

Equipment-specific training (hands-on)

- Proper operation of safeguards
- Limitations
- Maintenance and care
- Inspection
- Adjustment and placement
- Clarification of manufacturer requirements
- Procedures to follow when safeguard is discovered damaged, missing, etc.

Training and relevant retraining must be provided for new operators and maintenance/setup employees. Also, retrain affected employees when new or altered safeguards are used, when an employee is assigned to a new machine or operation, and whenever worker deficiencies are discovered.

Furthermore, safeguarding strategies must include adequate management controls, such as accountability, enforcement, inspection, and maintenance. This can ensure clean and roomy work areas, properly maintained safeguards, and that lockout/tagout procedures are followed, to name a few.

Finally, don't forget personal disabilities (e.g., color blindness, hearing impairment) if relying on visual warnings (colors) or audible warnings (machine startup).

To learn more about Hanover Risk Solutions, visit hanoverrisksolutions.com

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