

# **Dare County Schools**

## **Machine Safety**

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## Machine Safety

### ***Purpose***

The Dare County Schools Machine Guard Program is designed to protect Dare County Schools Employees from hazards of moving machinery. All hazardous areas of a machine shall be guarded to prevent accidental "caught in" situations. References: *General Requirements for all Machines* (29 CFR 1910.212), *Woodworking Machinery* (29 CFR 1910.213), *Abrasive Wheels* (29 CFR 1910.215), *Power Presses* (29 CFR 1910.217), *Power Transmission* (29 CFR 1910.219).

### ***Responsibilities***

#### **Management**

- Ensure all machinery is properly guarded
- Provide training to employees on machine guard rules
- Ensure new purchased equipment meets the machine guard requirements prior to use

#### **Supervisors**

- Train assigned employees on the specific machine guard rules in their areas
- Monitor and inspect to ensure machine guards remain in place and functional
- Immediately correct machine guard deficiencies

#### **Employees**

- Do not remove machine guards unless equipment is locked and tagged
- Replace machine guards properly
- Report machine guard problems to supervisors immediately
- Do not operate equipment unless guards are in place and functional
- Only trained and authorized employees may remove machine guards

### ***Definition of Terms***

1. Guards: Barriers that prevent Dare County Schools employees from contact with moving portions or parts of exposed machinery or equipment which could cause physical harm to the Employees.
2. Enclosures: Mounted physical barriers which prevent access to moving parts of machinery or equipment.
3. Point-of-Operation: The area on a machine or item of equipment, where work is being done and material is positioned for processing or change by the machine.
4. Power Transmission: Any mechanical parts which transmit energy and motion from a power source to the point-of-operation. Example: Gear and chain drives,

cams, shafts, belt and pulley drives and rods. NOTE: Components which are (7) feet or less from the floor or working platform shall be guarded.

5. Nip Points: In-Running Machine or equipment parts, which rotate towards each other, or where one part rotates toward a stationary object.

6. Shear points: The reciprocal (back and forth) movement of a mechanical part past a fixed point on a machine.

7. Rotating Motions an exposed mechanism are dangerous unless guarded. Even a smooth, slowly rotating shaft or coupling can grasp clothing or hair upon contact with the skin and force an arm or hand into a dangerous position. Affixed or hinged guard enclosure protects against this exposure.

8. Reciprocating: Reciprocating motions are produced by the back and forth movements of certain machine or equipment parts. This motion is hazardous, when exposed, offering pinch or shear points to an Employee. A fixed enclosure such as a barrier guard is an effective method against this exposure.

9. Transverse Motions: Transverse motions are hazardous due to straight line action and in-running nip points. Pinch and shear points also are created with exposed machinery and equipment parts operating between a fixed or other moving object. A fixed or hinged guard enclosure provides protection against this exposure.

10. Cutting Actions: Cutting action results when rotating, reciprocating, or transverse motion is imparted to a tool so that material being removed is in the form of chips. Exposed points of operation must be guarded to protect the operator from contact with cutting hazards, being caught between the operating parts and from flying particles and sparks.

11. Shearing Action: The danger of this type of action lies at the point of operation where materials are actually inserted, maintained and withdrawn. Guarding is accomplished through fixed barriers, interlocks, remote control placement (2 hand controls), feeding or ejection.

**Hazards** - use of machinery or equipment with inadequate guards or damaged controls can result in:

- Amputation
- Skin Burns
- Cuts & fractures
- Death

**Hazard Controls** - controls used to prevent exposure to moving or energized machine parts includes:

- Machine guards
- Interlocks
- Presence sensing devices
- Gates

- Two-hand controls
- Employee training

### ***Machine Guarding Requirements***

1. Guards shall be affixed to the machine where possible and secured.
2. A guard shall not offer an accident hazard in itself.
3. The point-of-operation of machines whose operation exposes an employee to injury shall be guarded.
4. Revolving drums, barrels and containers shall be guarded by an enclosure which is interlocked with the drive mechanism.
5. When periphery of fan blades are less than 7 feet above the floor or working level the blades shall be guarded with a guard having openings no larger than 1/2 inch.
6. Machines designed for a fixed location shall be securely anchored to prevent walking or moving. For example; Drill Presses, Bench Grinders, etc.

### ***General Requirements for Machine Guards***

1. Guards must prevent hands, arms or any part of an employees body from making contact with hazardous moving parts. A good safeguarding system eliminates the possibility of the operator or other Employees from placing parts of their bodies near hazardous moving parts.
2. Employees should not be able to easily remove or tamper with guards. Guards and safety devices should be made of durable material that will withstand the conditions of normal use and must be firmly secured to the machine.
3. Guard should ensure that no objects can fall into moving parts. An example would be a small tool that is dropped into a cycling machine could easily become a projectile that could and injure others.
4. Guard edges should be rolled or bolted in such a way to eliminate sharp or jagged edges.
5. Guard should not create interference which would hamper Employees from performing their assigned tasks quickly and comfortably.
6. Lubrication points and feeds should be placed outside the guarded area to eliminate the need for guard removal.

### ***Training***

All Dare County Schools employees shall be provided training in the hazards of machines and the importance of proper machine guards. Machine safety and machine guarding rules will be thoroughly explained as part of the new hire orientation program and annually as refresher safety training.