

Kennecott Utah Copper Corporation Safety and Health Standards

Standard No.: 16.8
Machine Guarding

16.8.1 INTRODUCTION

16.8.1.1 This standard provides guidance in providing guarding for drive belts, pulleys, sheaves, gears, chains, shafts, clutches, drums, flywheels, and other reciprocating or rotating parts of equipment.

16.8.2 REQUIREMENTS

16.8.2.1 The point of operation of any machine which exposes an employee to injury shall be guarded. The guarding device shall be in conformance with appropriate MSHA or OSHA standards. All guards shall be designed and constructed as to prevent personnel from having any part of their body or clothing from coming in contact with moving equipment components.

16.8.2.2 All drive belts, pulleys, gears, chain drives, shafts, couplings, keys, collars, pinch points, rotating parts, and similar moving machinery parts must be guarded under, over, and around in such a way as to eliminate the possibility of coming into contact with these parts.

- o Guards must be manufactured such that the mesh size and distance from the machinery will prevent contact with the moving parts. The maximum dimension of mesh openings shall be 1/2 inch.
- o The outside surface of the guard shall be painted in accordance with Color Coding Requirements Standard 15.6.

16.8.2.3 No equipment shall be operated unless all guards are in place, in good condition, and properly secured. In order to facilitate maintenance and provide the required protection, guards must be manufactured so that they are easy to remove and replace.

16.8.2.4 Guards shall be securely in place while machinery is being operated, except when testing or making adjustments which cannot be performed without removal of the guard. For all other cases refer to Safety and Health Standard 16.12.

16.8.2.5 Employees shall not climb over, around, or extend any part of their body through a guard to reach operating equipment.

- o Holes must not be cut into any guard to facilitate lubrication or adjustment. Lubrication pipes must be extended or guards redesigned where necessary. Grease lines should be extended so that lubrication can be accomplished from a safe location outside the guard.

References:

MSHA 30 CFR 56 Subpart M

MSHA Machine Guarding Handbook

OSHA 29 CFR 1910.220

KUCC Safety and Health Standard No. 15.6 Color Coding

KUCC Safety and Health Standard No. 16.12 Lockout / Tagout (Isolation)

Signatures

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16.8.2.6 The ideal characteristics of a guard are as follows:

- Ensure that access to danger points is blocked during the operation of the machine.
- Be a permanent part of the machine without weakening the structure.
- Not create additional safety hazards such as pinch points and splinters.
- Designed in such a manner as to provide access to parts requiring adjustments, maintenance, or repair and still eliminate contact with moving parts.

16.8.2.7 An area guard is a barrier which prevents entry into an area containing moving machine parts, thus preventing contact with the moving parts. Effective area guards may require additional practices and provisions such as signage, locks, color coding, etc., in addition to the physical barrier. When designing, installing and / or using area guards, consider:

- Security of the area.
 - Area locked or bolted
 - Guard prevents entry into the area
- Isolations procedures.
- Warning signs and color coding.
- Frequency of entry into the guarded area
- Number of people requiring access into guarded area
- Education and training in proper procedures

16.8.2.8 All new equipment must be inspected for proper guarding prior to release for service.