Training Solutions, Delivered!

MACHINE GUARDING:
Protecting You From Hazards
(Concise)

Leader's Guide, Fact Sheet & Quiz

Item Number: 1579

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation.

PREPARING FOR THE MEETING

Here are a few suggestions for using this program:

a) Review the contents of the Fact Sheet that immediately follows this page to familiarize yourself with the program topic and the training points discussed in the program. The Fact Sheet also includes a list of Program Objectives that details the information that participants should learn from watching the program.

b) If required by your organization, make an attendance record to be signed by each participant to document the training to be conducted.

c) Prepare the area and equipment to be used for the training. Make sure the watching environment is comfortable and free from outside distractions. Also, ensure that participants can see and hear the TV screen or computer monitor without obstructions.

d) Make copies of the Review Quiz included at the end of this Leader's Guide to be completed by participants at the conclusion of the presentation. Be aware that the page containing the answers to the quiz comes *before* the quiz itself, which is on the final page.

CONDUCTING THE PRESENTATION

a) Begin the meeting by welcoming the participants. Introduce yourself and give each person an opportunity to become acquainted if there are new people joining the training session.

b) Introduce the program by its title and explain to participants what they are expected to learn as stated in the Program Objectives of the Fact Sheet.

c) Play the program without interruption. Upon completion, lead discussions about your organization's specific policies regarding the subject matter. Make sure to note any unique hazards associated with the program's topic that participants may encounter while performing their job duties at your facility.

d) Hand out copies of the review quiz to all of the participants and make sure each one completes it before concluding the training session.

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FACT SHEET

LENGTH: 10 MINUTES

PROGRAM SYNOPSIS:
In today's work environments, many machines and processes are used to make our jobs easier, safer and more productive. Various types of equipment and machines can bend, cut, punch, press and perform countless other operations. As useful as these machines are, their movement and operation create extreme hazards. While your company has installed various types of machine guarding and safety devices to protect you from these hazards, these mechanisms will not protect you unless they are installed, maintained and used properly.

This video discusses common types of machine hazards, how they can be controlled and what actions must be taken to stay safe around moving equipment and machinery. Featured is testimony from workers who have been injured after removing or bypassing guards, or taking other risks around moving machinery. Other topics include potential machine hazard areas, controlling machine hazards, fixed guarding, adjustable guarding, electrical interlocks, photoelectric devices, pressure-sensitive trips and restraint devices.

PROGRAM OBJECTIVES:
After watching the program, the participant will be able to explain the following:
- The importance of properly using, installing and maintaining fixed and adjustable machine guards;
- The various types of safety devices that are used to prevent injuries;
- Why machine guards and safety devices must not be defeated, bypassed or removed.

INSTRUCTIONAL CONTENT:

POTENTIAL HAZARD AREAS
- Any time a machine performs work, three potential hazard areas exist.
- First, the immediate area around the machine may be subjected to flying debris or falling objects caused by the machine's actions.
- Secondly, the moving parts that drive a machine's actions such as drive shafts, gears, pistons and other transfer devices can present serious hazards.
- Finally, perhaps the most hazardous area is the point of operation. This is where a machine's raw mechanical or electrical power is harnessed to perform useful work.
- As part of their training, machine operators and maintenance personnel should be familiar with the various types of machine guarding and other safety devices used to protect them from hazards.

TYPES OF PROTECTION FROM MACHINE HAZARDS
- Machine guarding can be divided into two general categories: fixed guarding and adjustable guarding.
- Like all safety devices and procedures, machine guards only protect us when they are installed, maintained and used properly.
- Once installed properly, machine guards require little maintenance but should be inspected regularly. Operators should stay alert for missing pieces, loose bolts, broken parts, corrosion or other conditions that may reduce the effectiveness of the guard.

FIXED GUARDING
- Fixed guarding is ideal for those hazard areas that don't require frequent access, such as a machine's drive train.
- When guarding such as wire mesh is used, both the size of the openings and the distance of the guard from the hazard are important safety considerations.
- When guards have openings large enough to allow fingers or other body parts to pass through, the guard must be far enough away from the hazard that the hazard cannot be reached.
- If you feel a guard in your area has an opening too large for its distance from the hazard, report it right away.

• Machine guards are installed to protect you from a machine's hazards. Bypassing or removing these devices is asking for trouble.
• No matter what type of machine you are using, the guard should not be removed.
• If you find the guarding to be in your way while operating the machine, you are not operating it in the proper manner. Check with your supervisor to resolve the problem, but do not remove the guard.

ADJUSTABLE GUARDING

• Adjustable guards come in many variations. Some simply swing into a certain position, some adjust automatically during the operation of the machine and others require careful setup and adjustment by a qualified operator or maintenance worker.
• Any time adjustable guards are manually set by an operator, the chance for human error exists. Machine guards must be positioned correctly before a machine is operated.
• Always double-check the position of adjustable guards when the type, size or shape of material is changed.
• Treat adjustable guards in the same manner as fixed guarding. Never remove, defeat or bypass adjustable guards. If you find the guard to be in the way of using the machine, then you are not using it in the proper manner.

SAFETY DEVICES

• Safety devices can offer added protection from the hazards of equipment and machinery. There are as many types and variations of safety devices as there are machines that use them.
• Most safety devices fall into one of the following categories: electrical interlocking switches, photoelectric devices, pressure sensitive trips and restraint and pullback devices.

ELECTRICAL INTERLOCKS

• Electrical interlocks are unique in that they work in conjunction with machine guarding.
• These interlocks use sensors or switches attached to various types of machine guarding. These switches complete an electrical control circuit only when the guard is in the proper position.
• The machine is then configured so it can only operate when this control circuit is completed. Any time the guard is out of position, the circuit is interrupted and the machine shuts down.
• These interlocks are installed for your protection. Never attempt to override or bypass these devices. Also, never use these devices as a substitute for proper lockout/tagout procedures during maintenance operations.

PHOTOELECTRIC DEVICES

• Photoelectric devices, also known as light curtains, use beams of light that are directed into photoelectric eyes. If anything breaks one of these beams, a switch is tripped and the machine is shut down.
• Light curtains are often used near the point of operation and must be adjusted to allow material to pass without triggering a shutdown.
• When properly adjusted, the light curtain is set to the proper position to allow the material to enter the point of operation. It will be tripped, however, if the operator's hand or arm also passes through.
• Only trained and authorized employees are allowed to adjust light curtains.
• Don't be tempted to setup the light curtain for the largest stock you run without adjusting it for smaller stock. This defeats the protection offered by the light curtain and leaves you unprotected from the point of operation.
• Light curtains should be regularly inspected and tested. Because the light generally can't be seen by the human eye, an employee has no way of knowing if the curtain is working unless it is tested.
• Many companies have specific testing procedures that operators must follow. In general, each beam of the light curtain should be tested at the beginning of each shift. Check with your supervisor to find out your company's specific testing procedures.
• Never test a light curtain by placing your hand into the point of action. Always use an approved testing device.

PRESSURE-SENSITIVE TRIPS

• Pressure-sensitive trips activate switches when appropriate pressure is applied. Equipment and machinery can be configured to shut down or start up only when the desired pressure is detected.
• Keep in mind that these types of devices are designed for your safety. Trying to "get around" them in a misguided effort to work faster can be a disastrous decision.

RESTRAINT DEVICES

- Restraint devices are attached to a machine operator to prevent the operator from reaching into any point of operation.
- If you are required to use a restraint device, make sure it is properly adjusted. What may be a properly fitted restraining device for one person may be too short or too long for another.
- Like all pieces of safety equipment, periodically inspect your restraint devices. If they are worn or damaged, remove them from service.

SUMMARY

- Any time we operate or work near equipment and machines, we must always respect their power and recognize their hazards.
- You must understand that these devices will not protect you unless they are installed, maintained and used properly.
- Make sure the guarding and safety devices installed on the machines you operate offer maximum protection by following inspection and testing procedures.
- When you encounter any damaged or defective guarding or safety devices, report it right way so it can be repaired properly.
- Always remember that these devices are installed for your safety. Never cheat, defeat or override these devices.

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ANSWERS TO THE REVIEW QUIZ

1. a
2. c
3. b
4. a
5. b

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REVIEW QUIZ

The following questions are provided to determine how well you understand the information presented in this program.

Name_____Date_____

1. _____ guarding is ideal for hazard areas that don't require frequent access.

a. Fixed
b. Adjustable

2. A guard that is in your way while you operate a machine indicates that _____.

a. The machine doesn't require a guard
b. The guard should be bypassed so the machine will operate properly
c. You are not operating the machine in a proper manner

4. Electrical interlocks should be used to isolate the power to a machine during maintenance operations.

a. True
b. False

4. You must be trained and authorized to adjust a light curtain.

a. True
b. False

5. The best way to test a light curtain is to move your hand toward the machine's point of action to make sure it trips the shut-down switch.

a. True
b. False