



Loss Control TIPS

Technical Information Paper Series

Innovative Safety and Health SolutionsSM

Machine Safeguarding: What's Required vs. What's Effective

To many, “machine safeguarding” seems to be synonymous with “OSHA.” Unfortunately, this creates a myopic view of the art and science of safeguarding. We tend to see safeguarding as an OSHA requirement rather than as a risk management technique for preventing injuries and death.

Although compliance with OSHA standards is the *minimum acceptable* effort toward protecting workers from energy-related injuries, many manufacturing facilities don't meet even this minimum protection. In fact, it is surprising that there aren't more injuries caused by lack of guarding. In addition, many OSHA inspectors' knowledge of machine safeguarding is less than it should be. A common defense heard from many managers of facilities with serious machine safeguarding issues is: “What's wrong with it? OSHA came through here and didn't say anything.” Try that excuse on a worker without an arm, or a child without a father.

First, OSHA inspectors can't see everything, just as the insurance carrier representative can't identify every hazard. Second, OSHA is not responsible for proper safeguarding in that facility; the management is.

More than Just a Safety Program

Our experience also shows that only rarely are managers unconcerned about their employees. Yet they allow them to work with dangerous unguarded machinery, even allowing them to bypass or disable safeguards.

Effective machine safeguarding is a culture, not a program. Machine safeguarding is only effective when it is as dynamic as the production floor, which changes continuously. What constitutes proper safeguarding at any given moment may be inadequate in the next moment. Every person must be part of the machine safeguarding culture; otherwise, hazards will be left unprotected to injure, maim, and kill.

Some managers, who rightfully keep an eye on the bottom line, view machine safeguarding as a necessary evil, an expensive overhead program that may reduce injuries, but which interferes with production and quality. In these facilities, guarding becomes an afterthought, usually considered after the layout is drawn, after machine placement is determined, and after production goals are set.



Include Safeguarding in Planning

The least expensive—and most effective—methods of safeguarding are determined *during* process planning and equipment purchases. The further upstream machine safeguarding is considered, the better. For example, suppose that during a discussion of a new punching process, the need for safeguarding becomes evident.

The first consideration might be installation of a light curtain, which costs about \$3000. However, the project engineer suggests a rotating die, which would allow a relatively inexpensive barrier guard, while at least doubling production for this vital process. Had the single die originally specified been purchased, an opportunity to improve production and reduce safeguarding costs would have been missed.

Proper Design Contributes to Safe Use

Guards can themselves become hazards if they are designed poorly. One barrier guard seen recently was cut open to accommodate a new attachment. Not only was the hole large enough to allow a person to reach the point of operation, but had the person become entangled in the point of operation, the edges of the guard would have acted like a shredder.

Another company thought that since barrier guards protect against hazards, they should be a cautionary color, so they painted them yellow. The bright color was pretty, but it prevented the operator from seeing the point of operation. The guards ended up on the floor, serving only as a trip hazard. As a result, the operator was endangered rather than protected; the company had wasted money and time rather than becoming more efficient, and a new hazard was created rather than an existing hazard abated.

Familiarity Leads to Heedlessness

Psychology plays a significant role in point of operation safeguarding. Using a machine day after day is like driving in traffic on a two-lane road. An approaching truck might weigh around 70,000 pounds, with its bumper just about at windshield height. We don't often give it a second thought, but if that truck were to veer just five feet left, your car would become a convertible. We live with the risk every day, but because nothing happens year after year, we tend to ignore the hazard.

The same is true with a machine operator. A machine is a powerful piece of equipment, but an operator who uses it without incident for days or weeks tends to be lulled into forgetting how unforgiving it can be, and how permanent mistakes can be. Appropriate safeguarding helps prevent that *potential* from becoming *reality*.

Machine safeguarding is both a high science and an art. Properly designed and implemented, machine safeguarding usually enhances production, and pays for itself in injury prevention and in reduced per-unit production costs. Poorly designed, it impedes production and is frequently disabled by frustrated operators, eliminating life saving protection for these workers.

Conclusion

Safeguarding needs to be a well thought-out process.

- Identify machine safeguarding needs in the design stage
- Perceive identified machine safeguarding needs as opportunities to design better processes. Improvements in process design can reduce the need for machine safeguarding.
- Redesign safeguarding which negatively affects production.
- Understand that safeguarding which is routinely removed or defeated is usually an indication of poor design.
- Design for zero accidents related to inadequate machine safeguarding.

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