



Machine Guarding Case Studies

Occupational Safety and Health Programs

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Case Study # 1

Problem Summary:

In metal fabrication manufacturing facilities, mechanical press brakes are commonly used for forming and bending pieces of sheet metal. One often-used method of safeguarding these pieces of equipment is the installation of a presence-sensing device or light curtain. In one metal fabrication facility, the light curtain was installed so that there was a gap of approximately 5 inches below the bottom of the area protected by the light curtain. This lower gap allowed a person to access the hazardous point of operation of the press brake during the down-stroke by reaching under the light curtain.

Standard Reference:

29 CFR 1910.212(a)(3)(ii)

Solution:

Additional guarding and/or safeguarding was required to eliminate access to the point of operation. In the case of this one company, a new light curtain was installed with additional coverage area to eliminate the lower gap and protect employees. All areas not protected by the light curtain are protected by enclosure guards (e.g. sides and back of the brake).

Case Study # 2

Problem Summary:

In many manufacturing facilities, polishing machines or buffers are used to polish various types of metals. Many of these machines are not guarded properly. Two common hazards associated with polishing machines that go un-guarded include rotating shafts located between the motor and the polishing wheel and the spindle end and nut on the polishing wheel.

Standard Reference:

29 CFR 1910.219(c)(2)(i)

29 CFR 1910.212(a)(1)

Solution:

Add a permanent cover/guard that encloses the rotating shaft so that it is not accessible. The spindle end and nut can be guarded with a guard similar to the guards used on grinders. The guard must cover the spindle end and nut in the center of the polishing wheel so that they are not accessible and no projection hazards exist. This guard may come up from the floor or may be attached to the motor or other stationary portion of the machine. Ensure that the guard itself does not create additional hazards and that all other moving parts such as belts and pulleys are fully guarded.

Case Study # 3

Problem Summary:

A printing company contained several small printing presses with hazards such as rotating parts and in-running nip points from printing rollers. At one company, an operator was observed operating the printing press with the top cover open, exposing in-running nip points from rollers during the printing (production) process. There was no need for this cover to be left open during the production process exposing employees to machine hazards.

Standard Reference:

29 CFR 1910.212(a)(1)
29 CFR 1910.212(a)(3)(ii)

Solution:

While the operator was told to return the cover to the closed position during the on-site survey, the possibility of this hazard re-occurring existed. This machine was typically built with an interlock for the top cover to ensure that the machine cannot run without the cover securely in place. Since the interlock on this particular machine was not working properly, another part of the solution was to repair the interlock and ensure that employees test machine interlocks on a regular (at least daily) basis.