ADOSH ADVOCATE

Improving workplace safety & health

http://www.ica.state.az.us | Darin Perkins, Director | Summer 2007

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A Thousand Words

They say a picture is worth a thousand words. If that is the case, the one below is surely worth at least that much, if not more.

Taken at a construction site here in Arizona, it's not hard to begin to list the deficiencies and violations of the standards that are immediately noticeable: Ladders, scaffolding, fall protection, hazard communication and, probably near the top of the list, employee training.

Every now and then, ADOSH compliance officers and consultants come across situations that are, to say the least, outside the norm. They come across workplaces where the word "safety" is not even a part of the vocabulary. Workplaces where the employer apparently has no idea what it means to provide basic workplace safety and health protections to their employees.

Several years ago I conducted an inspection at a company that manufactured exercise equipment. Employees were exposed to numerous hazards, but what I remember most were the two or three employees, in a squatting position, using small pieces of cardboard to sweep up the dust and dirt in their work areas. This said a lot about management's view toward employees.

Thankfully, we don't see situations like that every day, but it is those experiences and photos like the above that remind us all to take a little extra time to think about employee safety.

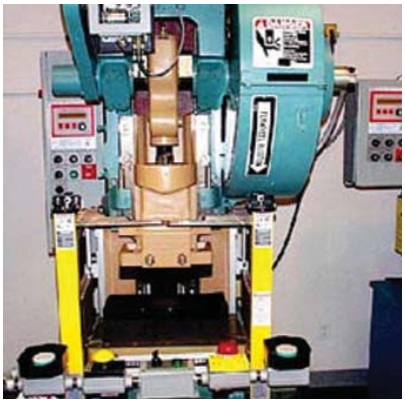
Darin Perkins, Director

Machine Guarding

The folllowing information is taken from OSHA's e-tool on machine guarding, found at www.osha.gov.

Employee exposure to unguarded or inadequately guarded machines is prevalent in many workplaces. Consequently, workers who operate and maintain machinery suffer approximately 18,000 amputations, lacerations, crushing injuries, abrasions, and over 800 deaths per year. Amputation is one of the most severe and crippling types of injuries in the occupational workplace, and often results in permanent disability.

A wide variety of mechanical motions and actions may present hazards to the worker. These can include the movement of rotating members, reciprocating arms, moving belts, meshing gears, cutting teeth, and any parts that impact or shear. These different types of hazardous motions and actions are basic to nearly all machines, and recognizing them is the first step toward protecting workers from the danger they present.



All machines consist of three fundamental areas; the point of operation, the power transmission device, and the operating controls. Despite all machines having the same basic components, their safeguarding needs widely differ due to varying physical characteristics and operator involvement.

Safeguards must meet these minimum general requirements:

Prevent contact: The safeguard must prevent hands, arms, and any other part of a worker's body from making contact with dangerous moving parts. A good safeguarding system eliminates the possibility of the operator or another worker placing parts of their bodies near hazardous moving parts.

Secure: Workers should not be able to easily remove or tamper with the safeguard, because a safeguard that can easily be made ineffective is no safeguard at all. Guards and safety devices should be made of durable material that will withstand the conditions of normal use. They must be firmly secured to the machine.

Protect from falling objects: The safeguard should ensure that no objects can fall into moving parts. A small tool which is dropped into a cycling machine could easily become a projectile that could strike and injure someone.

Create no new hazards: A safeguard defeats its own purpose if it creates a hazard of its own such as a shear point, a jagged edge, or an unfinished surface which can cause a laceration. The edges of guards, for instance, should be rolled or bolted in such a way that they eliminate sharp edges.

Create no interference: Any safeguard which impedes a worker from performing the job quickly and comfortably might soon be overridden or disregarded. Proper safeguarding can actually enhance efficiency as it can relieve the worker's apprehensions about injury.

Allow safe lubrication: If possible, one should be able to lubricate the machine without removing the safeguards. Locating oil reservoirs outside the guard, with a line leading to the lubrication point, will reduce the need for the operator or maintenance worker to enter the hazardous area.

Even the most elaborate safeguarding system cannot offer effective protection unless the worker knows how to use it and why. Specific and detailed **training** is therefore a crucial part of any effort to provide

safeguarding against machine-related hazards. Thorough operator training should involve instruction or hands-on training in the following:

-A description and identification of the hazards associated with particular machines;

-The safeguards themselves, how they provide protection, and the hazards for which they are intended;

-How to use the safeguards and why;

-How and under what circumstances safeguards can be removed, and by whom (in most cases, repair or maintenance personnel only); and

-When a lockout/tagout program is required.

-What to do (e.g., contact the supervisor) if a safeguard is damaged, missing, or unable to provide adequate protection.

This kind of safety training is necessary for new operators and maintenance or setup personnel, when any new or altered safeguards are put in service, or when workers are assigned to a new machine or operation.

Rebuilding Together Valley of the Sun has launched a new program, Senior Fall Prevention Services. SFPS will be a year-round program, which will help low-income seniors/ disabled homeowners live in their home more safely. According to the CDC:

- More than one-third of adults' age 65 years and older fall each year.
- Among older adults, falls are the leading cause of injury deaths and the most common cause of injuries and hospital admissions for trauma.
- Older adults are hospitalized for fall-related injuries five times more often than for injuries from other causes.
- Of those who fall, 20 to 30 percent suffer moderate to severe injuries that reduce mobility and independence, and increase the risk of premature death.

The Senior Fall Prevention program will help alleviate the risk of falling for seniors by installing various safety modifications throughout the home. The services provided include:

- Grab Bars
- Transfer Poles
- Smoke and/or carbon-monoxide detectors
- Hand-held shower heads
- Toilet seat raisers
- Slip-free bathtub mat
- Hand rails
- LED Night Light

If you are interested in volunteering, or if you know a qualified homeowner, please contact 480-774-0237.

The "Inbox"

We regularly receive questions and comments via e-mail, at adosh.comments@dol.gov. *Following is a selection of some we recently received.*

Question: At our manufacturing plant, we have a confined space that is fed argon gas under a pressurized line. The valve for the line is situated such that a standard lock-out cannot be applied to the valve.

The decision was made to modify the lock out device so that it could be applied to the valve. The resulting device clearly allowed the valve to be locked out safely.

The OSHA regulations are silent on the subject of modifying lock-out devices. Some of us feel that safety devices should not be modified under any circumstances. Others feel that since "homemade" devices are acceptable, a pre-purchased and then modified device is also acceptable. Please respond as the winning side has a free lunch coming.

Answer: Generally speaking, ADOSH would not be in favor of modifying any safety device. In fact, there are times when modifying a device can result in a citation. However, in response to your specific question, the answer lies within the information you provided, where you state that "the resulting modified device clearly allowed the valve to be locked out safely."

The key is whether the valve can be locked out. If it was, and the modification to the device did not render it unsafe, then the fact that it was modified is a moot point. If, however, such a modification did not fully lock out the valve, or allowed the device to be "bypassed" in some manner, then it doesn't provide proper lockout and folks should go back to the drawing board for another solution.

Question: When the air conditioning is broken in an office building, how hot can it get before they have to send employees home?

Answer: There are no OSHA standards dealing with ambient temperature in the workplace, whether indoors or out. While it can certainly be uncomfortable working in an environment without air conditioning, there is no requirement that employers send employees home when the temperature reaches a certain level.

Question: What are the requirements for skylights?

Answer: Skylights must be protected by a skylight screen, guardrails

Continued next page

2007 SRP Electrical Safety Workshop

Darin Perkins presenting the keynote address at the SRP Annual Overhead and Underground Electrical Safety Workshop. With more than 300 small business contractors in attendance, Darin presented an overview of safety and health statistics in the construction industry here in Arizona.

Fatal Mistakes

The title of this column is a little misleading for this subject. This column is going to address two catastrophe cases that occurred in 2006. These two totally unrelated instances could have accounted for eight employee fatalities. We were lucky, in that no one died.

A fatality in OSHA terms is the death of one or more employees in a single work-related accident. A catastrophe is the hospitalization of three or more employees as a result of a single accident or incident.

In our first case, a foreman and three laborers were sheeting a flat roof structure that did not have the wooden trusses adequately braced prior to attempting to sheet over the structure with 15/32" oriented strand board, also known as OSB. The trusses collapsed and all four employees fell 18' to the ground. Normally we would expect an 18' fall to result in fatalities. It was a fortunate circumstance that none of the four employees suffered fatal injuries from this accident.

Installation of braces, a "rat line" to tie the braces together in relation to each other, or sheeting and bracing a group of trusses at ground level, then lifting to roof height by crane would probably have prevented this catastrophe. Keeping employees in conventional fall protection equipment and anchored to a properly rated anchorage point may have been a reasonable alternative in this situation. As it was, four employees spent time in the hospital and suffered unnecessary pain, after narrowly missing death.

In the second case, four employees were injured by electrical shock when a concrete grout pump contacted an overhead power transmission line. All four employees received electrical shocks as a result of the electricity passing through the machine and the wet concrete in the pump and within the concrete forms. Hospitalization is indicated for high voltage contact because of possible additional physical effects and shock occurring later and the high levels of pain associated with this type of injury. All four were very lucky to survive.

This accident could have been avoided by having an independent spotter warning the pump operator if any portion of the grout line came within the legally mandated 10' exclusion zone around high voltage transmission lines, or by having the power company deenergize or otherwise make the line safe and route power to consumers through alternative portions of the power grid, if possible. While deenergizing power lines is not a desirable way to maintain community relations, it is certainly a preferrable way to work than having four employees subjected to a near fatal and extremely painful experience.

These two incidents reflect how close a catastrophe can be to multiple fatalities. As with all accidents and near misses, please use these descriptions as a learning tool to help train employees to work safe. These incidents involved terrifying pain, and narrowly missed death.

Ernie Miller, Safety Consultant

"The Inbox" continued

or other covering or barrier to prevent employees from falling through. Covers are to be capable of supporting at least twice the weight of employees, equipment, and materials that may be imposd on the cover at any one time.

In addition to covers or guardrails, a personal fall arrest system may be used to prevent an employee from falling through a skylight or opening.

VPP Update

ADOSH would like to extend our congratulations and welcome First Vehicle Services' operations at the Scottsdale Unified School District's bus yard into the Voluntary Protection Program.

First Vehicle Services delivers customized fleet maintenance solutions for employers across the United States.

ADOSH Education and Training Calendar

Registration for each class begins 30 days prior to the date of the class. Location and time will be provided at the time of registration. ADOSH classes are free of charge but are subject to change or cancellation without notice. **NOTE: The phone number listed for each class is the number participants need to call for registration purposes and may or may not be a direct number to ADOSH or the trainer. While ADOSH trainers can answer questions specific to the class such as content, attendees will need to call the specific number listed to register.**

Date	Class	Location	Trainer	Registration No.
July 11	Welding Safety	Kingman	Joe Gates	928-757-0863
July 11	Hand & Power Tool Safety	Tucson ICA	Tom Webb	520-628-5478
July 11	Machine Guarding	Kingman	Joe Gates	928-757-0863
July 12	Bloodborne Pathogens	Flagstaff	Melissa Drate	928-522-3020
July 12	Safety Management	Tucson ICA	Mark Norton	520-628-5478
July 17	Forklift Train-the-Trainer	Tucson ICA	Bill Garton	520-628-5478
July 17	Excavation Safety Awareness	Avondale	Joe Gates	623-935-8888
July 17	Ergonomics/Back Safety	Peoria	Melissa Drate	623-773-7679
July 18	Machine Guarding	Phoenix	Joe Gates	602-631-2008
July 18	Scaffold Safety Awareness	Tucson ICA	Cheryl Caballero	520-628-5478
July 19	Machine Guarding	Tucson ICA	Brian Knutson	520-628-5478
July 19	Hazard Communication	Snowflake	Melissa Drate	928-532-3515
July 19	Personal Protective Equipment	Snowflake	Melissa Drate	928-532-3515
July 24	Heat Stress Prevention	Phoenix ICA	Melissa Drate	602-542-1769
July 24	Excavation Safety Awareness	Prescott	Joe Gates	928-541-5001
July 24	VPP Information	Tucson ICA	Mark Norton	520-628-5478
July 25	Electrical Safety	Tucson ICA	Tom Webb	520-628-5478
July 25	Hand & Power Tool Safety	Yuma	Joe Gates	928-539-5405
July 26	Machine Guarding	Yuma	Joe Gates	928-539-5405
July 31	Forklift Train-the-Trainer	Phoenix ICA	Joe Gates	602-542-1769
August 7	Workplace Violence Prevention	Phoenix ICA	Melissa Drate	602-542-1769
August 8	Fall Protection	Bullhead City	Joe Gates	928-757-0863
August 8	OSHA Recordkeeping	Tucson ICA	Cheryl Caballero	520-628-5478
August 8	Lockout/Tagout	Bullhead City	Joe Gates	928-757-0863
August 14	Excavation Safety Awareness	Tucson ICA	Mark Norton	520-628-5478
August 15	Ergonomics/Back Safety	Phoenix	Melissa Drate	602-631-2008
August 15	Excavation Safety Awareness	Yuma	Joe Gates	928-539-5405
August 15	Fall Protection	Tucson ICA	Tom Webb	520-628-5478
August 16	Personal Protective Equipment	Yuma	Joe Gates	928-539-5405
August 21	Hand & Power Tool Safety	Peoria	Joe Gates	623-773-7679
August 23	Hazard Communication	Avondale	Melissa Drate	602-542-1640
August 23	Back Safety	Tucson ICA	Brian Knutson	520-628-5478
August 23	Safety Management	Prescott	Joe Gates	928-541-5001
August 28	Lockout/Tagout	Phoenix ICA	Joe Gates	602-542-1769
August 30	Excavation Safety Awareness	Mesa	Joe Gates	480-732-7320
September 5	Excavation Safety Awareness	Kingman	Joe Gates	928-757-0863
September 5	Scaffold Safety	Kingman	Joe Gates	928-757-0863
September 10	OSHA in the Medical Office	Phoenix ICA	Melissa Drate	602-542-1769
September 11	Personal Protective Equipment	Peoria	Joe Gates	623-773-7679
September 12	Steel Erection	Tucson ICA	Tom Webb	520-628-5478
September 12	Excavation Safety Awareness	Phoenix	Joe Gates	623-631-2008
September 13	Job Hazard Analysis	Tucson ICA	Mark Norton	520-628-5478
September 18	Electrical Safety	Flagstaff	Joe Gates	928-522-3032
September 18	Lockout/Tagout	Flagstaff	Joe Gates	928-522-3020
September 19	Confined Space Entry	Yuma	Melissa Drate	928-539-5405
September 19	Respiratory Protection	Yuma	Melissa Drate	928-539-5405
September 19	Hazard Communication	Tucson ICA	Cheryl Caballero	520-628-5478
September 20	Machine Guarding	Tucson ICA	Brian Knutson	520-628-5478
September 24	Forklift Train-the-Trainer	Tucson ICA	Bill Garton	520-628-5478
September 25	Confined Space Entry	Phoenix ICA	Melissa Drate	602-542-1769
September 25	Hazard Recognition, Gen. Ind.	Tucson ICA	Mark Norton	520-628-5478

Trainers may be contacted by e-mail by using the following format: <lastname>.<firstname>@dol.gov
"Phoenix ICA" classes are held at the Phoenix ICA building located at 800 W. Washington St.
All Tucson classes are held at the Tucson ICA building located at 2675 E. Broadway Rd.

Occupational Fatalities Investigated by ADOSH
January 1, 2007 through March 31, 2007

-A truck driver was killed when she was struck by a forklift that was being used to load vegetables into a tractor trailer.

-An employee was electrocuted while working on an ATM machine.

-An employee died when he fell off of an eight foot ladder. The employee was working on a door and attempted to use his foot to stop the door from falling, and was knocked off balance.

-An employee was fatality injured when he was struck on the shoulder and head by a double-framed 2" x 6" exterior wall, measuring 11' in height and 13' long.

-An employee died when he tripped and fell, striking his head.

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