

# ADOSH ADVOCATE

*Improving Workplace Safety and Health*



<http://www.ica.state.az.us>

Darin Perkins, Director

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## ADOSH ADVOCATE

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Comments and suggestions are welcome

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## Excavation Concerns

Recent weeks and months have seen an increase in the number of excavation related hazards observed by ADOSH compliance officers. This increase could be due to a number of factors, such as an increased emphasis by ADOSH on locating these types of hazards, or an overall increase in the amount of construction work taking place throughout the state. It is also possible that the increase in hazards and violations could be the result of more lax work practices on the part of some contractors, although such a reason would be extremely unfortunate.

During calendar year 2004, ADOSH conducted 95 inspections related to excavation operations. Those inspections resulted in 139 violations of excavation safety require-



ments, excluding training. By comparison, in the first nine months of calendar year 2005, ADOSH conducted 99 inspections related to excavation operations, resulting in 136 violations of excavation safety requirements, again excluding training. If the trend continues through the last three months of 2005, we can expect to conduct 132 inspections of excavation operations, with 181 violations of excavation safety requirements, other than training.

This information, while not enough to prove that there has been an increase

in non-compliant worksites, certainly indicates that ADOSH inspectors are observing greater numbers of hazards with respect to excavation operations.

We believe these figures are cause for concern. It's been a number of years since we've had a work-related, excavation fatality in Arizona. I'm sure all of you would agree with me that we would like to see that trend continue indefinitely. To make that goal a reality, we all need to work together to ensure that exca-

vations and trenches are properly protected against collapse. Anytime an excavation is greater than five feet deep, some form of protection such as

shoring, sloping, benching or trench box, must be utilized to keep the excavation from collapsing, or to protect employees in the event of a collapse. As an alternative, a registered professional engineer can be used to design an appropriate protective system.

There are already too many occupational fatalities due to other causes (see related article, page 2). Let's not add unsafe excavations to the list of those causes.

Darin Perkins, Director

## ADOSH Investigates Increasing Numbers of Fatalities

Regular readers of the *ADOSH Advocate* know that we always include a brief summary of the work-related fatalities that ADOSH investigated during the previous quarter. Typically, there are five or six fatalities summarized in each newsletter. Unfortunately, this edition lists over three times that amount; 20 occupational fatalities were investigated during the previous quarter and are summarized on page three.

ADOSH compliance officers investigated an average of almost seven fatalities each month during July, August and September. This represents a tremendous increase over the usual average of two per month. During the 12 month period that ended September 30, 2005, ADOSH conducted 39 fatality investigations, 12 more than the previous 12 month period.

There were four main causes of the fatalities this past quarter. Six

fatalities (30%) were the result of electrical contact. Five (25%) resulted from falls. Heat stroke and being crushed or struck by an object each resulted in four fatalities.

### The End of the Day

My dad went to work today but he never came home,  
They said he fell but the cause is unknown.  
His boss said he told him to be safe every day,  
But admits to no training to show him the way.

Who will I turn to when questions arise?  
Can someone please tell me why dad had to die?  
If only they listened when my dad complained,  
He would be here today to hold me again.

Mom said there are rules to protect those at work,  
Yet every day thousands still get hurt.  
She said some employers do all that they can,  
To protect their employees, each woman and man.

I wish my dad worked for a company that cared,  
Where the commitment to safety was by all, equally shared.  
Where training was given and the rules were all known,  
So at the end of this day, my dad would have come home.

M.D. Norton

ties. Finally, one fatality was the result of a fire/explosion. Twelve fatalities (60%) occurred in the construction industry.

Why are these fatalities occurring?

Quite simply, employers and/or employees are not taking the time to assess the work environment and determine the safe way of conducting the task at hand. If every employer provided his/her employees with the training and other tools and equipment necessary to allow them to perform their work safely, and if each employee took just a few seconds prior to performing their tasks to think about what they were about to do, fewer accidents and fatalities would result.

We can all spend many hours speculating as to the reasons for the increase in fatality investigations this past quarter, but the fact remains that there were many employees who did not return home to their spouse

and/or children.

Let's all work together to ensure that employees go home safely and that the coming months do not mirror the past.

## Mushroom Rebar Caps

29 CFR 1926.701(b) states: "All protruding reinforcing steel onto and into which employees could fall, shall be guarded to eliminate the hazard of impalement."

Although the standard, mushroom style rebar cap is commonly found on construction sites, the manufacturers of this type of cap agree that the caps were designed to provide



scratch protection only and were never designed to prevent impalement, even at grade.

There are other types of caps on the market that have been specifically designed to prevent impalement. Additionally, there are other methods that can be used to provide equal protection, such as bending the rebar.

As you consider the type of rebar impalement protection to provide, be sure to keep in mind the limitations of the product you use.

## Occupational Fatalities Investigated by ADOSH July 1, 2005 through September 30, 2005

- 1) An employee fell approximately 10' from a scaffold plank or ladder.
- 2) A propane cylinder in the bed of a pickup truck began leaking, resulting in a large explosion.
- 3) An employee was electrocuted while using a grinder with a frayed cord. The employee was standing in water, wet-grinding stone counter-tops.
- 4) An employee was crushed between a dip tank and a conveyor arm when the conveyor system cycled.
- 5) An employee was crushed by a shed that collapsed on top of him as he was attempting to dismantle it.
- 6) An employee fell 65 feet from a communications tower.
- 7) An electrician working inside of an energized cabinet was electrocuted when he made contact with the bus bar.
- 8) An employee working on a roof made contact with the service entrance riser into the home and was electrocuted.
- 9) An employee died of heatstroke.
- 10) An ironworker fell 51 feet.
- 11) An employee was electrocuted when he made contact with a piece of equipment being hoisted from an excavation. The arm of the track hoe hoisting the equipment contacted an overhead power line.
- 12) An employee was killed upon being struck by a forklift.
- 13) A roofing employee backed into a roof opening, falling 23 feet to his death.
- 14) An employee fell from a ladder, striking his head on the floor.
- 15) An employee working on a lighting system was electrocuted.
- 16) An employee died from heatstroke.
- 17) An employee died from heatstroke.
- 18) An employee fell while trying to climb down the side of a home under construction.
- 19) An employee was electrocuted while working on an A/C unit.
- 20) An employee died from heatstroke.

## SHARP Employers

The Arizona Division of Occupational Safety & Health (ADOSH) offers employers the opportunity to be recognized for their efforts in promoting safe and healthful work environments. The Arizona Safety and Health Achievement Recognition Program (SHARP), recognizes employers that have demonstrated exemplary achievements in workplace safety and health.

We are happy to announce that 8 more employers have recently received SHARP certification.

Mesquite Power, LLC, Arlington  
 Tube Service Company, Phoenix  
 A-Alyesh Chiropractic, Phoenix  
 Schumacher European, Ltd, Phoenix  
 ACE Asphalt, Inc., Tucson  
 Imsamet of Arizona, Goodyear  
 43rd Avenue Dental Care, Phoenix  
 Alexco, Chandler



There are currently 36 employers in Arizona that have received SHARP recognition.



The pot at the end of the rainbow.

## *Fatal Mistakes*

Wood frame construction is the most common type of residential construction in Arizona, as it is in most other states. We in Arizona have been in a huge hurry in the last few years to erect and complete a fantastic number of new homes. The building rush shows little sign of slow down, and certainly shows no sign of stopping.

Seven framing employees assembled a two story high wall on the floor of a new residence. Included in this wall assembly was a framed out decorative window, and the front decorative entrance for the home. The wall was over 19' high, and nearly 11' wide. The framing material was Douglas Fir 2" x 6" lumber. Total wall weight was not known at the site, nor was it known to the framers who were to lift the wall from horizontal to vertical, leaving it securely on top of the pressure treated footer board. It was learned later that the wall frame assembly weighed just over 1,000 pounds.

Had the weight been known at the site, prior to raising the wall, perhaps a little math would have shown that a wall of this weight was more than the seven men could handle without some mechanical assistance. It's asking a lot for a strong man to raise 140 pounds (one seventh of the total weight of this wall) above his head in a simple lift, let alone in a work place situation where the weight is compounded by leverage.

To further complicate this lift, it was found that the pressure treated footer board the wall was to be placed on was not secured to the concrete floor. The floor was post-tensioned concrete, making setting of Red-Head anchor bolts, or even concrete nails, impossible without absolute knowledge of the location of the post-tensioning cables in the concrete. Because the wall was not anchored at the base, two of the seven employees were placed at the base of the wall to "hold it in place" with their hands and feet. This left five employees to affect the "lift." Now the simple math becomes really revealing. The 1,000 pound wall becomes a monster. Each man required to raise 200 pounds above his head, using a variety of hand holds as the wall is raised. Leverage becomes involved as the wall becomes more than 7' or 8' above the floor, because the men have to move forward toward the base of the wall as it rises. This multiplies the downward force on the employee's hands.

The wall soon reached a point where the wall by the leverage, and the wall "kicked out" at the base causing it to tumble back down on the lifting employees. As is common with this type of accident, someone yelled a warning and all the employees scrambled out of the way, except for one. A component of the 1,000 pound wall struck him on the head. EMS crews arriving at the site found no pulse when they examined him.

All too often our construction crews in Arizona fail to take the time to adequately assess the mechanics involved in lifting, raising or erecting residential framed walls. Two story construction allows lots of room for dangerous failures to occur. In the case just described, more people was not the answer. In another case fifteen men failed to be able to raise a similar wall that was secured to a footer prior to lifting. They "lucked out" when the wall fell, because all of them were between boards at the time. Only one minor scalp laceration occurred, which could have been a similar fatality, given a slightly different employee position at the time of failure. Leverage and the effects of simple mechanics took both walls to the ground.

Perhaps a better method of raising this type wall could have been explored. A crane is a safer answer to problems like this. A forklift can also be used, if a well trained operator and crew are available. Because 19' to 20' walls are not uncommon these days, ADOSH suggests that a competent engineer design the wall sections to be raised, incorporate the means to raise them in the design (connection points for a lift device such as a crane or forklift), and ensure that the house plans clearly specify the means of raising the wall in place.

We must take time to analyze each job, train our employees in correct means of lifting walls, determine weights of framed walls with some accuracy, and limit the strain placed on our construction employees. With a little planning, some knowledge and a little calculation, we can save lives, and still build fine homes.

Ernie Miller, Safety Consultant

## 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.

Date	Class	Location	Trainer	Phone number
January 10	Forklift Train-the-Trainer	Avondale	Joe Gates	602-542-1641
January 11	OSHA 300 Log Recordkeeping	Phoenix	Joe Gates	602-542-1641
January 12	Scaffold Safety Awareness	Tucson	Tom Webb	520-628-5478
January 17	Forklift Train-the-Trainer	Tucson	Bill Garton	520-628-5478
January 17	OSHA 300 Log Recordkeeping	Kingman	Joe Gates	602-542-1641
January 17	Electrical Safety	Kingman	Joe Gates	602-542-1641
January 18	OSHA 300 Log Recordkeeping	Prescott	Joe Gates	602-542-1641
January 18	Noise/Hearing Conservation	Yuma	Fernando Mendieta	602-542-1640
January 19	Hazard Communication	Yuma	Fernando Mendieta	602-542-1640
January 20	Hand & Power Tool Safety	Tucson	Tom Webb	520-628-5478
January 23	Safety Management	Tucson	Mark Norton	520-628-5478
January 24	Excavation Safety	Phoenix ICA	Joe Gates	602-542-1641
January 26	Hazard Communication	Tucson	Carlos Rodriguez	520-628-5478
January 30	Electrical Safety	Tucson	Carlos Rodriguez	520-628-5478
January 31	Construction Hazard Recognition	Tucson	Mark Norton	520-628-5478
February 1	Welding Safety	Tucson	Tom Webb	520-628-5478
February 2	OSHA 300 Log Recordkeeping	Tucson	Mark Norton	520-628-5478
February 10	Hazard Communication	Tucson	Bill Garton	520-628-5478
February 7	Fall Protection	Prescott	Joe Gates	602-542-1641
February 14	Respiratory Protection	Kingman	Fernando Mendieta	602-542-1640
February 14	OSHA in the Medical Office	Kingman	Fernando Mendieta	602-542-1640
February 15	OSHA 300 Log Recordkeeping	Yuma	Joe Gates	602-542-1641
February 15	Fall Protection	Tucson	Tom Webb	520-628-5478
February 16	Excavation Safety Awareness	Tucson	Mark Norton	520-628-5478
February 16	Respiratory Protection	Avondale	Fernando Mendieta	602-542-1640
February 16	Forklift Train-the-Trainer	Yuma	Joe Gates	602-542-1641
February 21	Lockout/Tagout	Phoenix ICA	Joe Gates	602-542-1641
February 23	Forklift Train-the-Trainer	Mesa	Joe Gates	602-542-1641
February 24	Forklift Train-the-Trainer	Tucson	Bill Garton	520-628-5478
February 27	Lockout/Tagout	Tucson	Carlos Rodriguez	520-628-5478
February 28	Electrical Safety	Flagstaff	Joe Gates	602-542-1641
March 9	Respiratory Protection	Mesa	Fernando Mendieta	602-542-1640
March 10	Scaffold Safety Awareness	Tucson	Tom Webb	520-628-5478
March 14	General Ind. Hazard Recognition	Tucson	Mark Norton	520-628-5478
March 15	Scaffold & Ladder Safety	Yuma	Joe Gates	602-542-1641
March 16	Fall Protection	Yuma	Joe Gates	602-542-1641
March 20	Hazard Communication	Tucson	Bill Garton	520-628-5478
March 21	Electrical Safety	Tucson	Carlos Rodriguez	520-628-5478
March 21	Fall Protection	Peoria	Joe Gates	602-542-1641
March 22	Back Injury Prevention	Prescott	Fernando Mendieta	602-542-1640
March 23	Forklift Train-the-Trainer	Kingman	Joe Gates	602-542-1641
March 23	Personal Protective Equipment	Kingman	Joe Gates	602-542-1641
March 28	OSHA 300 Log Recordkeeping	Tucson	Tom Webb	520-628-5478
March 28	Forklift Train-the-Trainer	Phoenix ICA	Joe Gates	602-542-1641

Trainers may be contacted by e-mail by using the following format: <lastname>.<firstname>@dol.gov

ADOSH is always interested in receiving feedback regarding this newsletter, our consultation services, training courses, compliance inspections, or any other aspect of the division. If you would like to comment or make suggestions on any issue relative to the division, feel free to send us an e-mail at: [comments.adosh@dol.gov](mailto:comments.adosh@dol.gov)

You can use this same e-mail address to send us questions regarding occupational safety and health topics, standards, etc.

### ADOSH & Electrical Union Representatives Sign Alliance

On September 19<sup>th</sup> 2005 representatives from ADOSH, the Phoenix Electrical Joint Apprenticeship Training Committee, Phoenix and Tucson chapters of the IBEW and Arizona Chapter of the NECA (in both Tucson and Phoenix), entered into an alliance specifically designed towards helping members of the organizations to become more aware of safety and health regulations, specifically those that apply to their trade.

As part of the alliance ADOSH has agreed to provide assistance in the



development of training and educational programs as well as facilitat-

ing classes put on by the Apprenticeship and Training Committee.

Another element of the alliance is to promote and encourage alliance members or companies to participate in cooperative programs offered by ADOSH. The overall objective of the alliance is to provide a collaborative association between the signing parties in an effort to provide safer and healthier workplaces in the state of Arizona.

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