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Blueprints

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From the Jobsite to the Courtroom

BY DAVID ACORD

The U.K. government's safety regulator and construction industry are using mock legal trials to educate companies on the importance of workplace safety.

A prosecutor in central England paces the length of the courtroom while the judge looks on impassively. The senior executive of a large construction contracting firm is on the witness stand. Two of his employees were recently seriously injured on a jobsite, their legs crushed beneath a steel beam. The prosecutor wants to know why.

Think of it as "Scared Straight" for contractors—an innovative, up-close-and-personal way to drive home the importance of jobsite safety and the dire consequences of lax safety standards.

The executive squirms uncomfortably as he is forced to answer a series of rapid-fire questions: Who was responsible for making sure the workers were following proper safety procedures? Why did the jobsite not have the proper safety equipment? How often did you check with the onsite supervisor to make sure everything was running smoothly?

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Improving our Communication

There was a time in my life when I felt that we, as an industry, could not communicate enough. No matter how many conversations, phone calls and meetings we had, it always seemed that important pieces of information were missed that caused havoc with the critical path, affected the budget or caused compromises at a jobsite. But then came the solution, e-mail, which made things quicker. No longer did I get off-topic as I was talking with someone, I did not need to worry about a meeting running long and I also discovered that you can e-mail almost anything. E-mail included the ability to carbon copy many people at once to keep everyone in communication.

Neil Webster

I then began to use a smartphone so I could talk, text, e-mail, organize my activities, check the weather, do calculations, etc. And I was constantly thinking, wow, this is awesome! How did I ever do my job without it?

I recently read an article in the *Wall Street Journal* about how a growing number of kids in the U.S. say their parents think they spend too much time on their phones, but the kids feel their parents are actually the ones who spend too much time on their handheld device. This made me think about the construction industry and how much personal attention we pay to the workforce and to each other as fellow construction safety professionals.

I am an extrovert, and I enjoy shaking someone's hand and having a live conversation. So, I started exerting more effort to go to jobsites, sit in on jobsite meetings and use the phone to communicate with superintendents, project managers and safety peers to ask them about their families and other personal things before we got down to business. And you know what? It takes more time, but I think spending less time on my computer and handheld device allows me to communicate the safety message better than I have in the recent past.

Safety is about people. People have names, faces and hands that are more influenced by body language, voice tonality and eye contact than by black text on a white background.

Would this approach make you a better communicator than countless e-mails, text messages and other forms of electronic communication? I cannot answer that because each of us is different. All I can tell you is that I believe safety improves in my company when I spend less time communicating electronically and more time with the actual people.

I am not suggesting that we stop using electronic communication. It is quick and efficient, and quite frankly, expected. But perhaps the old-fashioned method is really a better fit for a given situation from time to time. That being said, we will work on several communication initiatives during my tenure. One will be to add more construction safety resource material to ASSE's **Body of Knowledge**. In addition, we will produce a "Wordless Safety Manual," which we expect to have a draft of by next spring, and conduct a live construction safety symposium. The last several years have been rife with construction industry layoffs and numerous belt-tightening measures, and ASSE has held several successful construction-related webinars during this time.

But I think it is time for us to get together and shake hands, look each other in the eye, talk about our families and then get down to business. ✪

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From the Jobsite to the Courtroom

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Meanwhile, in the packed gallery, more than 100 spectators—many of them construction executives too—watch intensely.

If this scenario sounds like a contractor's worst nightmare, you are right. But while the courtroom is real (as are the lawyers and judge), the case itself is pure fiction, part of a mock trial exercise. Think of it as "Scared Straight" for contractors—an innovative, up-close-and-personal way to drive home the importance of jobsite safety and the dire consequences of lax safety standards.

The trials are the brainchild of the Working Well Together Campaign (WWT), a partnership between the U.K. construction industry—individual companies as well as trade associations—and the Health and Safety Executive (HSE), the country's equivalent to OSHA. Their shared goal is to reduce the number of injuries and fatalities in the construction industry. Regional WWT branches hold numerous safety awareness activities across the U.K. geared toward construction professionals and workers, but a few years ago, organizers decided to try a new approach. Rather than schedule another seminar or print up a new safety leaflet, they gave the mock trial idea a try. It was an instant hit; in 2010 alone, WWT put on more than a half-dozen trials at various locations, and several more are planned. A mock trial in Cardiff, Wales attracted more than 200 builders.

Everyone pitches in at the scripted trials. Local contractors and construction executives are invited to observe. HSE provides a small amount of money to the local WWT group to help fund the event, and other members chip in as well. All of the trials are either free or cost little to attend.

Lawyers and judges often donate their time and court space, and WWT members, including HSE staff, play the parts of the defendant, safety inspectors, wounded employees and witnesses. Hours are spent beforehand creating a realistic accident scenario, one that could conceivably happen on almost any jobsite in the country—a fall from a great height or someone getting injured by heavy equipment, for instance. The trial itself takes place over the course of a few hours, and although the judge delivers the final verdict, the audience—made up of local contractors and laborers—is asked to vote by show of hands for the defendant's guilt or innocence and to explain their decisions. They are also asked to predict the penalty if there is a guilty verdict.

"The trial is the first time many of these contractors have ever been in a courtroom," explained Neil Stephens, head of planning and communications for HSE's Construction Division. "One of the comments we hear most often is, 'I understand how this process works now, you have taken away a lot of the mystery for me.'"

Knowledge of the process is extremely important, especially in the U.K. Unlike OSHA, HSE does not have the power to administer financial penalties for safety violations. However, it can shut down a jobsite altogether if deemed unsafe, but the agency saves its biggest weapon—the power to prosecute criminal charges in court—for the most serious offenses, usually, but not always, accidents involving fatalities, serious injuries or significant exposure to harmful substances such as asbestos. Under U.K. law, senior executives can be taken to court for the violations along with the company as a whole; in fact, the executive and the company will often be tried simultaneously.

"If you can prove that the [executive] knew something was happening, or should have known but did not, they can be held responsible as well," Stephens said. These real trials can last several weeks, and it is difficult for contractors to keep track of what actually goes on inside the courtroom. The mock trials help remove that veil of secrecy.

But just as importantly, the mock trial forces contractors to confront their own shortcomings, especially when there is a guilty verdict. "The thing that comes out most strongly from these exercises is that many of the contractors will turn around afterward and say, 'That really brought it home to me because a lot of things the defendant got in trouble for actually happen in my company all the time,'" Stephens added. "It is at that point when people suddenly realize that they personally have made decisions similar to those made by the contractor on trial. You see the light go on in their heads. They also get to see how their actions look in the cold light of day and how a prosecution lawyer can use those actions against them."

The level of scrutiny often surprises many contractors. During breaks, the lawyers will chat candidly with the audience and point out just how difficult such cases can be to successfully defend. For instance, say a contractor gets a call from one of his supervisors complaining that there is not enough scaffolding at the jobsite, but the client is pressuring the crew to move forward anyway and finish. The contractor is busy at the moment and tells the supervisor he will get back to him in a few minutes but then forgets to follow up. Under cross-examination, such minor mistakes can spell the difference between guilt and innocence. "Why did you not call back?" the prosecutor presses. "Is that how you run your business? Do you routinely leave your supervisors high and dry?" "It is all about getting the safety message across in a novel, slightly different way," Stephens said. "We want to show people how the system works and see what their failings might lead to."

Learn more about the WWT Campaign at **www.wwt.uk.com**. ✪

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Thanks to our sponsor!

ASSE Supports Construction Fall Prevention Campaign

Each year, thousands of workers are injured and 225 die from construction-related falls. To provide additional tools to prevent worker injuries and fatalities in the construction industry, ASSE is joining with OSHA and NIOSH to support a new **Fall Prevention Campaign**.

The national campaign to raise awareness about how to prevent falls in construction is also supported by state governments, private industries, trade associations, academia and professional and labor organizations. It focuses on providing prevention information and training materials on three major types of fatal falls: falls from roofs, falls from ladders and falls from scaffolds. More than 10,000 construction workers were injured as a result of falling while working from heights in the U.S. and another 225 were killed in 2010.

Ron Sokol, ASSE member, who also represents ASSE on the NIOSH National Occupational Research Agenda (NORA) Construction Sector that developed the campaign, and president and CEO of the Safety Council-Texas City, notes that more needed to be done to prevent falls, such as this new initiative.

"This effort took some time to develop, as we 'proof-tested' all of the information in this campaign with workers and employers in English and Spanish, but was completed on a very aggressive schedule for a campaign of this magnitude," Sokol says. "We want to reach as many people as possible to prevent construction workers and others from falling while at work."

Sokol noted that occupational SH&E professionals work with construction workers and employers to provide them with the safest workplaces possible as well as with PPE

aimed at protecting those workers in their environments and much more. This new effort will provide additional tools.

"We are trained to prevent injuries and illnesses and are used to working in all industries on all sites—from huge skyscrapers in Singapore to oil rigs to manufacturing plants to residential homes and apartment buildings. We work everywhere," Sokol says.

Some of the risks involve working on sloping roofs, from heights, at the edge of buildings, possible slipping, carrying equipment and more. To help keep construction workers stay safe, SH&E professionals also use **consensus standards**. Additionally, ASSE's largest industry group is the **Construction Practice Specialty**. This group, made up of top construction safety professionals with global experience, shares best practices, produces a triannual publication, meets annually, sponsors construction-related sessions at ASSE's annual professional development conference and much more.

OSHA's new fall prevention web- page has detailed information in English and Spanish at **www.osh.gov/stopfalls** along with the **www.stopconstructionfalls.com** website from the Center to Protect Workers' Rights with information from industry, nonprofit and academic sources. In the upcoming months, OSHA plans on translating fall prevention literature into seven additional languages to have the broadest impact possible. The campaign is adding new information and resources monthly to keep it fresh and relevant.

"Planning ahead, identifying risks and providing training along with the right equipment will help prevent construction worker falls," Sokol says. "The information from the new Fall Prevention Campaign will be invaluable. We urge everyone to share it with your company, friends, coworkers, community, schools and more. We are all part of the solution to help prevent falls." ✪

ASSE Urges OSHA to Ensure ADOSH at Least as Effective in Fall Protection

In a **letter** to Assistant Secretary of Labor David Michaels, ASSE urged OSHA to ensure that the Arizona Division of Occupational Safety and Health (**ADOSH**) meets its obligation as a state plan to be "at least as effective as" OSHA and enforce fall protection for residential construction workers at 6 ft. ASSE's **Arizona members** requested the Society's help in addressing the passage into law of Senate **Bill 1441** that made sure Arizona employers cannot be required to protect construction workers from falls under elevations of 15 ft. ASSE also urged OSHA to work with ADOSH outreach efforts to advance understanding of the importance of a 6-ft. standard. SB 1441 bars enforcement of less than a 15-ft standard but not the sharing of best practices on how to protect construction workers from falls.

Campaign to Prevent Falls in Construction

NIOSH, OSHA, CPWR—The Center for Construction Research and Training and the NORA Construction Sector Council (a national government-labor-management partnership) have launched a national campaign to prevent falls, the leading cause of work-related injury and deaths in construction.

Why a Campaign?

•More than 10,000 construction workers were hurt and another 255 killed at work in 2010 after falling from height [U.S. Bureau of Labor Statistics Census of Fatal Occupational Injury 1992-2008, (private sector workers only)].

•Falls from heights cause the second-highest rate of nonfatal injuries and illnesses resulting in days away from work [U.S. Bureau of Labor Statistics Survey of Occupational Injury and Illness 2008, (private sector workers only)].

•Almost two-thirds (65%) of fatal falls in construction occur among workers employed by small firms—those with 10 or fewer employees [Dong, X.S., Fujimoto, A., Ringen, K. & Men, Y. (2009). Fatal falls among Hispanic construction workers. Accident Analysis and Prevention, 41, 1047-1052.].

Access Resources

The campaign materials offer three steps to preventing falls: Plan. Provide. Train. Find out more by accessing these resources at **www.stopconstructionfalls.com** (hosted by CPWR—The Center for Construction Research and Training). On this site, you can:

•become a campaign partner;

•sign up for regular updates by clicking the RSS feed icon in the upper-right corner of the page;

•download all the latest campaign materials.

Visit OSHA's **campaign site** to order copies of the campaign poster and fact sheet in English and Spanish.

Visit NIOSH's **campaign site** for links to the NIOSH FACE program and other useful resources.

Get Involved

•Join the campaign. E-mail **falls@cpwr.com** or visit **www.stopconstructionfalls.com/**.

•Add a link to **www.stopconstructionfalls.com/** from your website.

•Send out an e-mail blast and run an article in your newsletter announcing the campaign.

•Read and comment on NIOSH's recent campaign **Science Blog**.

•Post campaign-related info, photos, events, comments and resources on the campaign's **Facebook page**.

•Follow @NIOSHConstruct on Twitter and retweet the latest campaign news.

NIOSH, OSHA, CPWR and the NORA Construction Sector Council would like to support you in any way they can. For more information, please e-mail **falls@cpwr.com** or visit **www.stopconstructionfalls.com/**.

Temporary Enforcement Policy for Proximity Alarm & Insulating Link Use with Cranes & Derricks in Construction

Effective July 26, 2012, up to November 8, 2013, OSHA intends to follow the temporary enforcement policy described here for use of proximity alarms and insulating links with cranes or derricks while engaged in construction activities near power lines. The construction cranes and derricks standard, 29 CFR 1926 Subpart CC, includes several options for cranes and derricks performing construction activities near power lines. Some of the options involve proximity alarms or insulating links/devices. Effective November 8, 2011, Subpart CC at §1926.1401 defined "proximity alarm" and "insulating link/device" as devices that warn of proximity to power lines or that insulate against electricity and that have been "...listed, labeled or accepted by a nationally recognized testing laboratory (NRTL) in accordance with §29 CFR 1910.7" ("NRTL requirements"). These pieces of safety equipment must meet the performance requirements and the "NRTL requirements" as defined in Subpart CC at §1926.1401, Definitions, to be used on cranes and derricks in construction.

As of July 26, 2012, no current proximity alarm or insulating link/device meets the Subpart CC "NRTL requirements." Additionally, at this time, no NRTL is recognized by the agency to perform the required testing to list, label or accept either type device. Proximity alarms and insulating links/devices, which do not meet the Subpart CC "NRTL requirements," continue to be available, as they have for decades. These versions have not been "...listed, labeled or accepted by a NRTL in accordance with §29 CFR 1910.7."

Because there are no compliant proximity alarms or insulating links/devices, OSHA intends to follow the temporary policy noted here until November 8, 2013, to give the industry additional time to meet the "NRTL requirements." The temporary policy is for proximity alarm use under §1926.1407 Power line safety (up to 350 kV)—assembly and disassembly, for use under §1926.1408 Power line safety (up to 350 kV)—equipment operations, for use under §1926.1409 Power line safety (over 350 kV) through §§.1407 and .1408 over 350 kV, and for insulating link/device use under §1926.1410 Power line safety (all voltages)—equipment operations closer than the Table A zone.

Proximity Alarms

At this time, because no current proximity alarms meet the "NRTL requirements" as stated in the §1926.1401 definition for "proximity alarm," employers may not rely on any proximity alarm to comply with the requirements in 29 CFR 1926 Subpart CC. However, if a compliance safety and health officer (CSHO) encounters a crane/derrick in construction using a proximity alarm in conjunction with a properly implemented additional "measure," such as using a "dedicated spotter" or "range control warning device" from §§ 1926.1407(b)(3) or .1408(b)(4), then no citation is to be issued for violation of either §§1926.1407(b)(3)(ii) or .1408(b)(4)(i), including situations where voltages are over 350 kV as referenced in §1926.1409.

Insulating Links/Devices

At this time, because no current insulating links/devices meet the "NRTL requirements" in the §1926.1401 definition for "insulating link/device" and because §1926.1410(d)(4)(v)(A) prohibits using insulating links/devices manufactured after November 8, 2011, employers may not rely on any insulating link/device to comply with requirements in 29 CFR 1926 Subpart CC. However, if a CSHO encounters a crane/derrick in construction using an insulating link/device in conjunction with workers properly protected by implementation of the requirements in § 1926.1410(d)(4)(v)(A) and (B), no citation is to be issued for violation of the §1926.1410(d)(4)(v)(A) requirement that the insulating "... link/device be manufactured on or before November 8, 2011..."

If OSHA staff encounters proximity alarms or insulating links/devices of unknown or questionable status or markings, contact the NRTL Program Office within the Directorate of Technical Support and Emergency Management at (202) 693-2300 for clarification whether or not the device is a "proximity alarm" or an "insulating link/device" within 1926.1401 definitions and "NRTL requirements."

NCCCO Recognizes Employers With Committed to Crane Safety Program

The National Commission for the Certification of Crane Operators (NCCCO) has launched its new Committed to Crane Safety **program**. The Committed to Crane Safety program is an employer recognition program developed by NCCCO to recognize employers who have demonstrated their commitment to safety by hiring CCO-certified personnel.

NCCCO recognizes the time, effort and resources expended by companies in obtaining certification for their crane operators and related personnel. "Crane operators, signalpersons and riggers receive recognition for their knowledge and skill related to safe crane operations when they are issued a CCO certification card," says NCCCO Commission Chair, Kerry Hulse. "It is therefore appropriate that safety-conscious employers should also be honored for their commitment to safety."

Companies that participate in this program have demonstrated that they are committed to crane safety by hiring CCO-certified personnel. They also usually have a hiring policy that requires or strongly encourages CCO certification. In so doing, they identify themselves as companies that strive for excellence in their hiring and training efforts. All companies that successfully qualify for entry into the program receive a special recognition package that includes the rights to use the exclusive CCO "Proudly Employing" logo(s), coverage of their efforts in national and local media and more.

"We enthusiastically applied for participation in this new program," says Jeffrey Hammons, vice president of risk management at AmQuip Crane Rental in Trevose, PA. "CCO certification has driven our operators to perform on a more professional level and has raised their awareness of best practices. And our customers have a greater sense of safety and security knowing our operators are tested and certified in their craft."

"Zachry is delighted to be a charter member of this new recognition program," says Samuel Rogers, senior corporate crane safety coordinator for Zachry Industrial in San Antonio, TX. "By requiring CCO certification for all our operators, Zachry decreased its crane incident cost by 80% in the first year of implementation."

"Safety-conscious companies work hard to earn, maintain and protect their reputation in the industry," says Thom Sicklesteel, whose company Sicklesteel Cranes Inc. in Mount Vernon, WA, is also a founding participant in the new program. "It is appropriate that companies that qualify their workforce be recognized as well."

Companies that participate in this program identify themselves as companies that strive for excellence in their hiring and training efforts.

Any company that employs CCO-certified personnel is eligible to apply for the Committed to Crane Safety program. Companies that qualify may work in general construction, crane rental, sign installation, steel erection, manufacturing, machinery installation and petrochemicals.

Companies that display their recognition plaque can demonstrate both to their clients and employees that safety is a priority.

Companies may apply for recognition within the separate programs established for employers of for crane operators, riggers and signalpersons. Companies interested in demonstrating they are Committed to Crane Safety submit an online application along with supporting documentation. Examples of such documentation may include the percentage and/or number of operators who are CCO-certified at the company, a copy of the employer's hiring policy requiring a certain level of experience and education and the number of years the policy has been in place.

No fees are required for participation. Recognition is valid for 1 year. When a company is nearing its anniversary, an opportunity is provided for renewal.

To learn more about the NCCCO Committed to Crane Safety program and apply online, visit NCCCO's **website** or contact the Employer Recognition Program Manager **Tara Whittington**.

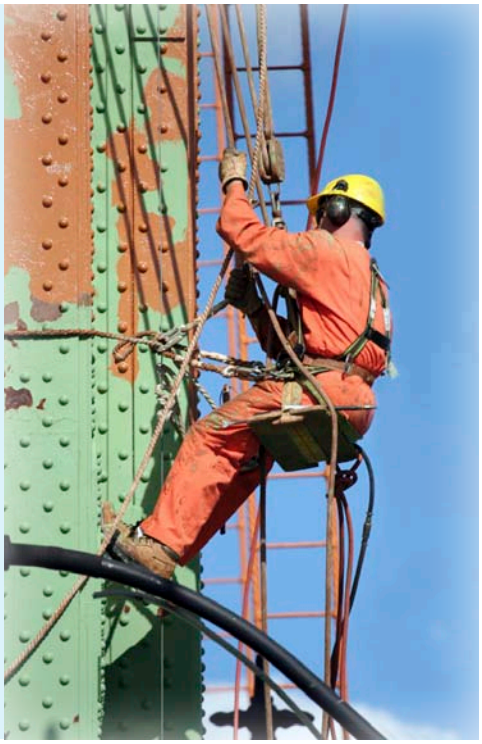
New Z359.14 Standard Now Available

The new standard, "Safety Requirements for Self-Retracting Devices for Personal Fall Arrest and Rescue Systems" (**ANSI/ASSE Z359.14-2012**), is now available. This standard establishes requirements for the performance, design, qualification testing, markings and instructions, inspections, maintenance and storage, and removal from service of self-retracting devices (SRDs) including self-retracting lanyards, self-retracting lanyards with integral rescue capability and self-retracting lanyards with leading edge capability. This standard establishes requirements for SRDs intended for use in personal fall arrest or rescue systems for authorized persons within the capacity range of 130 to 310 lbs (59 to 141 kg).

The standard focuses on:

- definitions and general requirements;
- qualification testing;
- markings and instructions;
- user inspection, maintenance and equipment storage.

For more information, click **here**.



OSHA Looking for Info on Reinforced Concrete in Construction & Preventing Backover Injuries & Fatalities

OSHA published a request for information (RFI) on employee safety risks in two areas, reinforcing operations in concrete work (construction only) and fatal backovers by vehicles and equipment (all industries). The RFI requested information that will assist the agency in determining what steps, if any, it can take to prevent injuries and fatalities in these two areas. OSHA will use the comments received to learn more about how workers get injured and what solutions exist to prevent injury and death, including possible regulatory action.

Workers in the concrete industry use reinforcing methods to strengthen concrete. These workers face potentially life-threatening hazards, including impalement, collapsed walls and slips, trips and falls.

Workers in the concrete industry use reinforcing methods to strengthen concrete. These workers face potentially life-threatening hazards, including impalement, collapsed walls and slips, trips and falls. OSHA data indicate that more than 30 workers died while performing these activities from 2000-09. Safety issues relating to these operations were brought to OSHA's attention in a 2010 petition from the International Association of Bridge, Structural, Ornamental & Reinforcing Iron Workers and an industry coalition of stakeholders, including the Concrete Steel Reinforcing Institute, the Western Steel Council and the Center for Construction Research and Training.

Workers also face fatal injuries when struck by vehicles backing up or when caught between backing vehicles and an object, such as a loading dock. OSHA found that about 360 workers died from backover incidents from 2005-10. OSHA's RFI is consistent with other agencies' regulatory actions, including the National Highway Traffic Safety Administration, which issued a notice of proposed rulemaking requiring cameras in certain vehicles under 10,000 lbs to prevent people from getting backed over.

Click **here** for more information.

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INTERVIEW

OSHA's 2012 Fall Prevention Campaign

How Planning, Equipment and Proper Training Can Reduce Falls

Falls continue to be one of the top causes of on-the-job fatalities in the U.S. today. Carl Heinlein, CSP, CRIS, OHST, and R. Ronald Sokol, CSP, helped develop and roll out OSHA's 2012 Fall Prevention Campaign. In this interview, Heinlein and Sokol provide background on the campaign and explain how SH&E professionals can best utilize its resources.

BP: ***Please provide a brief description of your professional backgrounds.***

CH: I have worked for American Contractors Insurance Group since 2002 and have been in the SH&E field for 20 years. I am currently a member of the NIOSH National Occupational Research Agenda (NORA) Construction Sector and serve as president of the Board of Certified Safety Professionals.

RS: I have been practicing in the occupational SH&E field for 33 years. My background is concentrated in construction from my experience with the Bechtel Group of Companies. For the past 23 years, I have been president and CEO of Safety Council Texas City.

Carl Heinlein

BP: ***Why did OSHA, NIOSH and NORA's Construction Sector decide to partner together on this campaign?***

CH: OSHA, NIOSH and NORA Construction Sector have been working together on many items, including the nail gun research project, but the fall campaign has been the biggest collaborative effort thus far. Falls are still the leading cause of deaths in the construction industry (excluding vehicle-related deaths). Everyone involved embraced the partnership to develop the first of many campaigns to help reduce and/or eliminate death and injuries on and off the job.

RS: I believe when Congress created the OSHA Act in 1970, it envisioned partnerships between NIOSH and OSHA to be a natural progression of how both agencies would operate. The culture and work processes of OSHA and NIOSH took each organization in different directions. When NORA was created in the 1990s, NIOSH researchers became engaged with SH&E practitioners to outline the U.S.'s SH&E agenda for the next 10 years. In the development of NORA's different sectors, the Construction Sector was assembled with NIOSH researchers, SH&E practitioners and OSHA representatives. Through the collaboration of the Construction Sector Councils, ideas began to germinate on ways to advance SH&E activities involving Research to Practice (R2P) and Prevention through Design (PtD) applications. The fall campaign's foundation was built on the success of the OSHA/NIOSH/NORA Construction Sector nail gun research project, which turned R2P research into usable documents for construction contractors and their workers. This success inspired the partnership to take on a great project with a far-reaching impact designed to stop worker fall fatalities in construction.

BP: ***How does this campaign work to raise awareness among English-speaking and Spanish-speaking construction workers nationwide?***

CH: Much of the material is offered for both English- and Spanish-speaking workers. The information is also offered in many formats, including photographs, video clips and graphics, to increase retention and understanding. Most importantly, the information offered is easy to use.

RS: The campaign originally focused on reaching predominantly English-speaking and Spanish-speaking residential contractors and their employees. Focus groups used in the campaign development phase represented this cross-section of employees. OSHA representatives expressed their desire to increase the breadth of the campaign to cover all employees working at height and at risk to falls. OSHA took the initiative to ensure that campaign materials were provided in English and Spanish and plans to translate campaign material into six more languages. OSHA provided space on its website to allow for campaign literature to be accessible to contractors and their employees. The success of OSHA's heat stress campaign last year served as a model for the fall prevention campaign. The campaign's message is simple and direct—Plan, Provide and Train. This was similar to OSHA's heat stress campaign, which focused on Water, Rest and Shade.

Even though the target audience began with small residential contractors, OSHA's involvement expanded

the scope to all employers who have workers at risk from fall hazards. Construction employers and small-, medium- and large-sized corporations can all benefit from the materials provided in the campaign.

BP: ***How is OSHA coordinating the campaign's outreach?***
CH: OSHA, NIOSH and the NORA Construction Sector Partners are working together on a regular basis to discuss how they are sharing campaign information to avoid duplication or gaps in spreading the word. Specifically, we hold a monthly conference call to coordinate current campaign efforts and to develop future opportunities to enhance and share the campaign information.

OSHA and NIOSH are sharing campaign information on their websites, as well as in printed campaign materials at meetings and conferences. OSHA has shared the campaign information with all of its regional and area offices and with the OSHA Training Institute for distribution. Both NIOSH and OSHA leadership continue to discuss the campaign's importance while working with both public and private organizations.

BP: ***The three tenets of the fall prevention campaign are:***
1) Plan ahead to get the job done safely.
2) Provide the right equipment.
3) Train everyone to use the equipment safely.
What steps should employers and workers take to execute each step effectively?
CH: It is critical that any end user use any or all of the various campaign information to best fit their operations and employees. Many free resources are also available that can help individuals develop the best approach, but for those who use the information for the first time, it never hurts to see what the employees understand and retain. Provide the right equipment and train everyone on the three tenets—Plan, Provide and Train.

RS: We have often heard the old adage, "Plan your work and work your plan." This statement is the foundation of the risk management philosophy to eliminate falls from heights. Without proper planning, workers are placed in a reactive mode based on their limited knowledge plus experience and expertise. Proper planning is used to greatly limit fall exposure. Concepts like PtD are aimed at limiting worker exposure to heights.

One great success story involves a contractor who was tasked with steel erection for the new Miami Marlins baseball stadium. By using PtD techniques, the amount of steel connections that needed to be completed at elevation was greatly reduced. Needed connections were performed by workers in aerial lifts, which greatly reduced fall exposure to all ironworkers on the project. This example illustrates how important the Plan component is for the program to succeed.

As for providing the right equipment, this could be aerial lifts as discussed or proper PPE for worker exposure to fall hazards that cannot be eliminated by design means and methods. Understanding the need to use the right equipment for the job and providing proper training in the equipment are keys to success for the second step.

The last step focuses on training. This step is last because PPE and the training of its use should be the last resort to eliminate fall hazards. The problem with using training as a preferred method of limiting fall exposure is that it introduces the human element into the equation. People do not always do what they were trained to do. Other factors like time, knowledge, cost and retention can greatly limit training. Remember, a misstep while working at elevation can result in a fatal mistake in seconds. Many times, you do not get a second chance.

BP: ***What resources does OSHA provide as part of the campaign to help safety trainers improve or enhance their fall prevention training?***
CH: OSHA offers a variety of free information, including videos, CDs, pamphlets, quick information cards and an excellent website to help anyone develop and enhance their fall protection training and education programs. OSHA also has a great network of local and regional offices that offer assistance. You can contact the **OSHA Training Institute** or any of the OSHA outreach training centers located throughout the U.S. with any questions.


R. Ronald Sokol

RS: Our focus group research found that more workers and employers visit the OSHA website than any other resource. Workers place a tremendous amount of credibility on information provided by OSHA. Workers understand that OSHA was created to protect them from dangerous SH&E hazards in the workplace, and for 40 years, OSHA has earned their trust. That is one main reason why it was so important to launch the campaign with OSHA's buy-in. As stated, OSHA has taken the lead in translating campaign materials and launched the campaign during Worker Memorial Day this past April headed by Labor Secretary Hilda Solis. OSHA has been a great partner on the campaign, as has ASSE and its members.

Our focus group research found that more workers and employers visit the OSHA website than any other resource. Workers place a tremendous amount of credibility on information provided by OSHA.

It is still early in the campaign, but feedback has been extremely positive. Interviews like this will help keep the information out in front of not only SH&E professionals in the construction industry, but also SH&E professionals in all industries.

BP: ***Do the A10 standards for construction and demolition operations or any other national voluntary consensus standards play a role in the campaign?***

CH: At this point in the campaign, they are reference material. In most cases, these standards cost money and are not always easy to understand. We are trying to offer resources that are free and easy to use and understand.

RS: Contractors, owners, architects and engineering firms who look for guidance by using ANSI/ASSE A10 standards are moving the ball well beyond the baseline issues addressed in this campaign. That does not mean the principles on which the campaign is built—Plan, Provide, Train—are not beyond the scope of these organizations, but these groups are using these principles in ways never thought of before (see previous example on Miami Marlins Stadium project). One thing to remember is we can always Plan, Provide and Train better and smarter on each project so the campaign theme is relevant to those groups that use A10 standards.

BP: ***How can SH&E professionals best make use of the fall prevention campaign's resources, or what can they do to promote the campaign within their organizations?***

CH: Most contractors are looking for good training and education material, and now they have it! The campaign information can be used to enhance your current programs. Contractors can share the campaign information with their employees as well as with fellow contractors.

RS: As a member of the NORA Construction Sector and a member of ASSE's Government Affairs Committee, I have taken it upon myself to expose ASSE leadership to the campaign. ASSE has taken up the charge by providing every attendee at Safety 2012 in Denver, CO, with a handout about the campaign, and information was included in all Safety 2012 media kits. As a past Construction Practice Specialty (CPS) administrator, I have submitted campaign literature to current CPS leadership to be included in Blueprints. I have also worked to distribute campaign literature to the 750 contractors who are members of Safety Council Texas City.

Every ASSE member and SH&E practitioner should promote and educate contractors, workers, owners, engineers and architects about the campaign. It is part of our mission to protect people, property and the environment. In this mission, people come first, and this campaign is about educating people. Each ASSE chapter should communicate campaign information to its members and should hold at least one meeting per chapter year to discuss the campaign. The NORA Construction Sector is working on a PowerPoint presentation that will supply a consistent message about the campaign to any audience. This should be available for download shortly. Companies can reprint and rebrand campaign information with their logo on materials. These are just a few ways to get involved.

BP: ***How have construction workers and employers responded to the campaign thus far?***

CH: It is still early in the campaign, but feedback has been extremely positive. We still have a long way to go, but interviews like this will help keep the information out in front of not only SH&E professionals in the construction industry, but also SH&E professionals in all industries.

RS: It has been greeted with great enthusiasm. The NORA Construction Council is working to supply new materials each month to keep the campaign fresh and alive.

BP: ***Do OSHA, NIOSH and NORA's Construction Sector plan to collaborate on similar campaigns in the future? If so, what safety topics are under consideration?***

CH: The fall prevention campaign is certainly laying the groundwork for future campaigns, but we still have plenty of work to do and lessons to learn. The Construction Sector developed the fall prevention campaign based on discussions to ensure the highest impact in reducing injuries and fatalities in the construction industry. Other potential campaign areas include struck-by, caught-in and/or electrocution hazards, three of the remaining leading killers of construction workers and part of the OSHA Focus Four in Construction.

RS: The fall prevention campaign was chosen from a larger discussion about the Focus Four Hazards involved in construction fatalities (falls, struck-by, caught-in and electrocution). I can envision a campaign focused on the other three main killers in construction-related fatalities (struck-by, electrocution and caught-in). We can use the lessons learned in creating this campaign to be more effective and efficient in launching future campaigns. The lessons learned will serve us well in the future.

BP: ***In what ways will you both continue to support the campaign throughout the remainder of 2012?***

CH: My colleagues continue to share campaign material with our contractors, and we have posted campaign information on our company website. Ron and I recently presented on the campaign at ASSE's Professional Development Conference (PDC). We also had a chance to discuss the campaign at the PDC practice specialty, branch and common interest group meetings, and we are including campaign information in many of ASSE's practice specialty publications.

RS: Carl and I have committed ourselves to be spokespeople to any and all groups with which we interact. We believe this campaign will save lives, and the NORA Construction Sector has built a research component into the campaign strategic plan to evaluate the campaign's success over time. I look forward to having an impact on many other future campaigns, both short- and long-term.

Carl Heinlein, CSP, CRIS, OHST, *joined American Contractors Insurance Group (ACIG) in February 2002. Prior to this position, Heinlein was director of construction services for FDR & Associates in Nashville, TN. He is also a past safety and health director for The Associated General Contractors of America (AGC). Heinlein holds a master's degree in Safety and Environmental Management from West Virginia University. He is a member of the NIOSH National Occupational Research Agenda (NORA) Construction Sector and also sits on the editorial advisory board for Environmental Health and Safety magazine. Heinlein is chair of West Virginia University's Safety and Environmental Management Graduate Program Visiting Committee. He is also president of the Board of Certified Safety Professionals and is an active member of ASSE, AIHA, AGC and the National Safety Council.*

R. Ronald Sokol, CSP, *has been president and CEO of Safety Council of Texas City since 1990. He has approximately 10 years' experience with Bechtel Group of Companies in the U.S. and abroad. He is a member of the Houston Business Roundtable Safety and Health Resource Committee and a frequent presenter at national safety conferences. A Professional Member of ASSE, Sokol is a past administrator of ASSE's Construction Practice Specialty (CPS) and a past recipient of the Charles V. Culbertson and CPS Safety Professional of the Year awards. Sokol holds a B.S. in Safety Science from Indiana University of Pennsylvania.*

Practice Specialties Scholarship

The practice specialties sponsor a Professional Development Conference (PDC) Scholarship. This scholarship provides a full PDC experience, including airfare, hotel, meals and registration. Currently, two $1,200 awards are given each year.

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Donate Now

2013 Poster Contest

Children ages 5-14 will have the opportunity to illustrate the importance of safety by entering the 11th annual ASSE kids' Safety on the Job poster contest. The contest aims to teach children about the importance of being safe at work and what occupational SH&E professionals do to protect people, property and the environment.

The contest is open to all children sponsored by an ASSE member. ASSE members can sponsor family members, schools and the children of their coworkers. Those seeking an ASSE member to request sponsorship can check with their local ASSE chapter by clicking **here** or by sending an e-mail to **customerservice@asse.org**.

Last year's first place winner, Abigail Helser

The winning poster from each of the five age groups is featured on the annual North American Occupational Safety and Health (NAOSH) Week poster distributed worldwide, at NAOSH Week events and at Safety 2013. The five grand-prize winners and 15 runners-up each receive prizes and are recognized at NAOSH kickoff events in May 2013 and worldwide through ASSE communications and publications. The posters that best illustrate safety on the job will win the contest. Click **here** for contest rules and information. Entries are due by February 14, 2013.

By Geoffrey Peckham

Applied Semiotics

Communicating Silica Hazards Using New Best Practice Safety Sign Standards

Crystalline silica can be found in abundance in the world around us—in granite rock, quartz, sand and soil. But when crystalline silica is breathed into the lungs as a dust or fine powder, it can cause silicosis—a nonreversible and sometimes fatal lung disease. Crystalline silica has also been linked to kidney and immune system diseases, cancer and other respiratory diseases. Many common workplace activities in the construction industry have the potential to place workers at risk of exposure to **crystalline silica hazards**, including but not limited to, tunneling, dry sweeping, stonecutting and rock drilling. According to OSHA statistics, silica exposure is a serious threat to nearly 2 million workers in the U.S. with more than 100,000 workers classified in what are considered to be "high risk" jobs.

The new signage's goal is to give workers the precise knowledge they need to avoid silica dust hazards.

The good news is that two things can help substantially reduce injuries and deaths related to this hazard: 1) increase awareness of the hazard and 2) define and implement proper workplace procedures that use specific PPE. Safety signage can help accomplish both of these tasks. This article explores how it is possible to achieve better safety communication in the construction industry through the development of new silica hazard safety signs that embody the latest ANSI Z535 safety sign standards and semiotics (the science behind how signs and symbols communicate).

First, let us look at what is typically found in today's workplace. Figure 1 is a dust hazard sign configured to meet the **OSHA 1926.200** Construction Safety and Health regulations. Most safety professionals are unaware that this regulation's sign designs are based on the 1968 ANSI Z35.1 Standard for Accident Prevention Signs, the standard OSHA first used in 1971 to base its regulations for safety signs (1910.145). This regulation states that employers must identify potential hazards in their workplace. By their definition, the OSHA-style signs are overly simplified in their content when compared to the new ANSI standards, and they rarely use graphical symbols—a best practice that is rapidly being adopted for all types of warning messages worldwide.

Safety professionals should be aware of the fact that, as David Michaels, assistant secretary of labor, explained at ASSE's Safety 2012 in Denver, CO, OSHA recognizes the fact that its citations of standards are completely out of date and safety professionals would be well-advised to use the latest best practice ANSI standards as their go-to resource for improving workplace safety. In the case of safety signs, this standard is ANSI Z535.2-2011 Standard for Environmental and Facility Safety Signs, which counts the old Z35.1 standard as its basis document, thus allowing its use to be acceptable for meeting OSHA regulations.

It is clear that employers have a responsibility to post safety signs in work areas where potential hazards exist and that the ANSI Z535.2 standard should be used for sign designs. This is the starting point because current societal expectations go beyond giving employees merely the "right to know" that a hazard exists. People want to know precisely what the hazard is and how to avoid it. The new ANSI Z535.2 sign technology yields a content-rich safety sign that employs graphical symbols, standardized severity level color-coding and carefully chosen wording to meet this objective. The difference between a well-designed ANSI Z535.2 sign system, when compared to the OSHA-style signs, is day and night.

Now, to the hazard at hand, respirable silica dust. What should the new sign look like? The new signs will not be identical, meaning you will not see the same sign everywhere silica dust hazards are present. This is because intelligent thought needs to be put into defining and displaying specific safety procedures, hygiene rules and PPE requirements related to this hazard, and these things can vary depending on the specific work environment and different companies' rules and best practices. Tailoring the signs to meet specific company/work area needs is the right course of action because the new signage's goal is to give workers the precise knowledge they need to avoid silica dust hazards. Having said this, the new signage should share common elements. Because people's recognition of hazards should be global in scope, the logical starting point for the consistent recognition of silica dust hazards is that silica dust safety signs should use the same graphical symbols.

The new silica hazard sign (Figure 2) incorporates both the ISO symbol for "wear respirator" and one of the new Globally Harmonized System (GHS) symbols—the "Health Hazard" symbol. This GHS symbol will soon be used worldwide in the chemical products industry to indicate a range of standardized meanings, including Carcinogen, Mutagenicity, Reproductive Toxicity, Respiratory Sensitizer, Target Organ Toxicity and Aspiration Toxicity. This symbol's visual representation captures the respiratory nature of silica hazards. While other older symbols could have been used, use of the GHS symbol will help reinforce the GHS initiative

Figure 1 Old OSHA-Style Safety Sign

Figure 2 New ANSI-Style Silica Dust Safety Sign

as the right global method for communicating this type of hazard. Use of this symbol on silica dust hazard signs will also help employees become increasingly aware of the GHS symbol and its "respiratory hazard" meaning, which will help in the recognition and understanding of all types of health-related hazard signs.

The second element that could be standardized with this sign is the choice of signal word, in this case, WARNING. The ANSI Z535.2 standard is clear in its definitions for the use of the three kinds of hazard alerting signal words, DANGER, WARNING and CAUTION. WARNING is to be used when interaction with the hazard "could" result in serious injury or death. DANGER is to be used when interaction "will" result in serious injury or death. And CAUTION is used when minor or moderate injury could result. At this point in time, most research is showing that illness or death "could" result from exposure to silica dust, and so WARNING is the proper choice for signal word, both in terms of probability and severity of injury as defined by ANSI Z535.2.

Lastly, the new sign should use text and/or symbols to communicate all three of the content elements defined by the ANSI Z535.2-2011 standard for hazard-alerting safety signs:

- the nature of the hazard;
- the consequence of interaction with the hazard;
- how to avoid the hazard.

The ANSI Z535 committee did not invent these content items. They have been developed over the last several decades by U.S. courts as the definition for what constitutes an "adequate warning" for product manufacturers. Now we are seeing this same legal measure for warnings being applied to premises—like beaches and swimming pools—where the public could be exposed to hazards. It makes perfect sense to apply this same standard for "adequacy" of information to workplace safety signs, and this is exactly what the 2011 ANSI Z535.2 standard has done. This is the information people need to know to make good decisions to avoid hazards.

So back to the example of a new silica dust hazard sign as shown in Figure 2. It defines the hazard, the consequence of interaction with the hazard and precisely how to avoid the hazard. It uses both text and universal symbols to achieve effective communication. And that is the objective.

Industry-wide use of these ANSI Z535.2-2011 principles for all hazard-alerting safety signs will provide the construction industry with a standardized means to more effectively communicate substantive safety messages to employees, visitors and the public. Just as important, using the newer ANSI standards will bring the construction industry in line with the adoption of the ANSI Z535.2 safety sign standard that is taking place in a wide variety of industries throughout the country. When completed, this movement will have established an ANSI Z535-based national uniform system for hazard recognition that will better protect people at work, in public places and at home (the ANSI Z535.4 Standard for Product Safety Signs and Labels uses the same safety sign criteria and formats as are used by the ANSI Z535.2 Standard for Environmental and Facility Safety Signs).

As a follow-up to this article, please submit safety issues you think could benefit from the development of a new 2011-ANSI Z535 compliant safety sign. Subsequent Blueprints articles will feature the "old" and "new" signs so CPS members can see the benefits of using the new standards to achieve specific safety communication objectives. Our overall goal in this effort is to help the construction industry establish new benchmark safety signs that both meet the latest standards and use the best practice design principles of semiotics to communicate safety. To submit your ideas, click **here**.

Geoffrey Peckham *is a longtime member of ASSE and president of Clarion Safety Systems. He is chair of both the ANSI Z535 committee and the U.S. Technical Advisory Group to ISO Technical Committee 145: Graphical Symbols. Over the past two decades, he has played a role in the harmonization of U.S. and international standards pertaining to safety signs, colors, formats and symbols. This article and all safety sign designs are courtesy of Clarion Safety Systems ©2012. All rights reserved.*

By Don Garvey, CSP, CIH

Extended Work Shifts & PELs

Production is one of the most important words on a construction site. Frequently, the need for productivity requires extended work shifts. Ten- to 12-hour work shifts, such as turnaround projects at refineries, or 7-day workweeks in response to emergency situations like natural disasters, are common. While production is important, worker safety and health must still be protected. Exposure to airborne contaminants, such as silica dust or welding fume, must be controlled below the respective occupational exposure limit (OEL). Most OELs however, such as the OSHA permissible exposure limits (PELs) and American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values (TLVs), assume 8-hour work shift (exposure) duration with 16 hours of nonexposure time in a 5-day workweek. Conversely, extended work shifts increase the exposure duration while simultaneously decreasing nonexposure time. Because of this and the need to protect workers, contractor safety professionals must evaluate if the OELs they are using require modification to account for the extended shift.

OSHA

OSHA in 29 CFR 1926, with one exception, does not have any requirements to adjust the PEL due to extended work shifts. The exception is the PEL for Lead in Construction—29 CFR 1926.62. For lead in construction, OSHA requires a simple proportional reduction of the PEL using the formula:

PEL = [(400 micrograms/cubic meter)/(h)]

h = hours worked per shift

Therefore, a 12-hour shift would require a PEL of (400 ug/m^3)/12 = 33 ug/m^3.

For all other chemicals, OSHA will take one of two approaches when assessing worker exposure during extended shifts (OSHA 1997, OSHA 1999). The compliance officer will either:

1) Sample what s/he believes to be the continuous 8-hour work period with the highest average concentration during the extended shift. For example, during a 12-hour shift, the compliance officer feels hours 3 through 10 have the highest exposure levels. The officer will sample during those hours and compare the result to the PEL.

2) Collect multiple samples over the entire shift and calculate the worker's 8-hour time-weighted average (TWA) exposure based on the highest exposure results during the shift. For example, the compliance officer collects 6 2-hour samples during a 12-hour shift. Samples 1, 3, 4 and 6 (8 hours total sample time) have the highest individual results of the 6 samples. The compliance officer will calculate the TWA from these 4 samples and compare to the PEL. The 8 hours used need not be contiguous.

Contractors should also be aware that some states follow their own state OSHA plans rather than OSHA (e.g., Washington State). These state OSHAs may also address extended work shifts. For a complete listing of state OSHA programs, consult OSHA's **website**. Contractors in states with state-run OSHA programs should consult with their local regulatory authority.

Other Extended Work Shift Models

As noted by ACGIH in its 2011 TLVs, the objective of modification of OELs for extended work shifts "is to ensure that daily peak body burden or weekly peak body burden does not exceed that which occurs during a normal 8-hour/day, 5-day/week, shift" (ACGIH, 2011).

Other more sophisticated (and complicated) models than those described here are available to account for extended work shifts and increased exposure duration.

A widely used (but relatively simple) model to account for extended work shifts is the Brief and Scala model (Brief & Scala, 1975, 1986). It reduces the OEL proportionally for both increased exposure duration and decreased nonexposure time.

The model calculates a reduction factor that is then applied to the OEL:

Reduction Factor (RF1) = [8 hours/h] x [(24 – h)/16)]

h = hours per shift

8 = hours per standard shift

24 = hours per day

16 = hours of nonexposure time during a standard shift day

RF x OEL = extended shift OEL

For a 12-hour highway renovation project with exposure to crystalline silica (OEL = 0.1 mg/m^3), the extended shift OEL would be:

RF = [8 hours/12 hours] x [(24 hours – 12 hours)/16] = 0.5

0.5 x 0.1 mg/m^3 = 0.05 mg/m^3 12-hour OEL

One special case of extended work shifts is the 7-day workweek. The same authors suggest the following model to account for the lack of weekend nonexposure time:

RF2 = (40/h) x [(168 – h)/128]

h = hours worked per week

40 = hours per standard work week

168 = total hours per week

128 = hours of nonexposure time during a standard shift week

For an 8-hour-per-day, 7-days-per-week job with exposure to iron oxide welding fume, the modified OEL (OEL = 5 mg/m^3) would be:

RF2 = (40/56) x [(168 – 56)/128)] = 0.625

5 mg/m^3 x 0.625 = 3.1 mg/m^3 7-day OEL

In this case, the shift was 8 hours. If the shift itself is

While production is important, worker safety and health must still be protected.

extended (e.g., 10 hours) both RF1 and RF2 should also be calculated and the more restrictive of the two used.

ACGIH (2011) lists several precautions and limitations that must be understood when using these models:

•Extended-shift models should not be used to justify any unnecessary exposure. Always minimize exposures when possible, regardless if it is under the exposure limit.

•It is suggested that increased medical surveillance be started when first implementing the extended-shift exposures to help detect any adverse health effects that still may occur.

•This model cannot be used to adjust the OEL upward for a shortened shift. A 6-hour shift or a 30-hour workweek, for example, would still use the regular 8-hour OEL for exposure evaluation. The model cannot be used to justify a reduction factor greater than one.

Short-Term Exposure Limits & Ceiling Limits

In general, short-term exposure limits (STELs) and ceiling OELs should not be affected by extended work shifts and would not require modification. STELs are typically based on 15-minute sample times to control peak exposures, and ceiling levels are not to be exceeded even instantaneously during the work shift. Both are usually set to prevent acute effects, such as irritation to the eyes, respiratory tract or skin. When working with these OELs, however, health and safety professionals should confirm the basis for the OEL is in fact to prevent short-term acute effects (e.g., irritation) not long-term systemic effect (e.g., organ damage).

As with regular 8-hour shifts, for a chemical with both a TWA OEL and a STEL (e.g., asbestos), the health and safety professional should evaluate both the full-shift and short-term peak exposure. Compliance with one does not guarantee compliance with the other.

Other Considerations

Health and safety professionals should also consider that extended work shifts may cause increased stress, fatigue and reduction in sleep, alertness and concentration. All of these may increase the risk for "cutting corners" with subsequent injuries and accidents, including potential chemical overexposure. Extended shifts may also cause problems with PPE being worn (e.g., breakthrough of respirator chemical cartridges) or not being worn due to fatigue or reduced concentration. In extended work shift situations, additional attention to comfort, durability and worker acceptance of PPE may be needed.

Conclusion

Construction health and safety professionals need to take the extended work shift into account when conducting a chemical exposure assessment to help ensure that their workers are properly protected from a potential overexposure. Extended work shifts may also trigger a need to reevaluate PPE being used to ensure that it maintains its expected protection levels and worker acceptance. ✪

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Call for Technical Reviewers

One of ASSE's best-selling publications, *Construction Safety Management & Engineering*, needs technical reviewers to assist with the second edition. The book is a 38-chapter peer-reviewed resource for SH&E professionals and a higher education textbook. The book will be published late 2013.

Technical reviewers are needed for the following chapters:

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By Peter Furst, CSI, CSP, ARM, REA, CRIS

Construction Project Management's Impact on Safety

Construction project management is the discipline of planning, organizing, controlling, securing and managing resources so as to bring about a project's successful completion. A project usually is a temporary endeavor, having a defined beginning and end undertaken to meet unique goals and objectives. The primary challenge of project management is to achieve the project goals and objectives within predetermined constraints. Primary project contract constraints are scope, time and budget. Project management has challenges, which include the need to optimize the allocation of resources (inputs) integration of processes and procedures, as well as alignment of plans and activities so as to meet predefined objectives. In this scenario, usually, the general contractor or the construction manager-at-risk takes on the responsibility for overall management of the construction project.

A strategy framework should be devised for the job staff to follow and for management to use in oversight activities.

To successfully manage a project, the project manager must simultaneously manage the four basic elements of a project: time, money, resources and most importantly, scope. The time element includes task durations, dependencies and the critical path; the money element includes costs, contingencies and profit; the resource element includes people, equipment and material; and the scope element includes project size, goals, requirement, etc. These elements are interrelated and must be managed concurrently as well as effectively if the project and the project manager are to successfully achieve the project's goals. Construction projects require the coming together of multiple organizations working together cooperatively so as to achieve both individual organizational as well as project overarching goals.

Effective project management is more important today than ever before. Given the economic situation, competition is fierce and margins are razor-thin so effective project management is critical to the construction organization's ability to navigate these difficult times. The time to deliver a successful project is here, and it is now. It requires some people to do the work while other people manage the process. This means having a plan, a goal, sufficient resources and timely information and working effectively, efficiently and safely. To accomplish this, everyone must be capable, knowledgeable, engaged and involved. Everyone must know and appreciate what to do, how to do it and why they are doing it.

Fundamental Steps

To ensure the project's success, the organization must first define the vision for the project. A well-developed vision statement provides direction, sets priorities, ensures interdepartmental alignment, integrates plans and activities as well as inspires performance. The vision becomes the basis for all decision-making going forward. If the stated or assumed project vision is to meet all contract terms and conditions while maximizing profit, then every decision made will ultimately hinge on meeting or exceeding these objectives. If safety is not clearly addressed in the vision statement, then it will "play second fiddle" throughout the project no matter what is stated elsewhere because the vision statement will become the final arbiter of choices made, priorities set and resources allocated.

To ensure that the vision will be achieved, a strategy framework should be devised for the job staff to follow and for management to use in oversight activities. For this to work most effectively, senior management must involve the project manager. This not only reviews contract obligations, but also realistically determines how to achieve these objectives in the most efficient and effective way. The expectation of the main office for the project and the project for the main office are discussed and agreed upon. This includes ground rules for authority, communication, problem resolution, staffing, other resources, project goals, etc. This process also provides opportunities to coach and counsel as well as just-in-time intervention before the "numbers go south" on the project. And the project manager has a clear understanding of the boundaries, which allows for greater flexibility in decision-making, problem resolution and overall managing the process. This goes a long way in creating trust and strong cooperative working relationships.

Project Process Management

To ensure the project's success, the project team must review the project's vision as well as strategy. This sets the framework within which the project's staff will operate. Team structure, responsibilities and development follow.

It is left up to the contractor to manage the safety of its workforce.

The team leader (project manager) sets the climate, which soon creates the project culture. The project staff must determine and define the steps in the strategy implementation process. They then must determine how they will measure and provide feedback to their own crews as well as to subcontractors on their performance. If this is done intelligently, then the three attributes of project success (production, quality and safety) can be managed at an effective level.

To ensure that safety is dealt with effectively, every project must compile a risk matrix or log before the project starts. This should be standard procedure, just as no project manager would dream of starting a project without a plan (operational, tactical or logistical) as well as a schedule. A review of input requirements is directly related to risks associated with the ability of that task to do what needs to be done for its required output. Building the plan "backwards" ensures that inputs are determined after outputs are understood and defined. This focus on interdependencies in effect addresses risk since missed dependencies in plans and schedules are a serious source of risk. A careful and diligent review of the resource needs, durations and sequencing will serve to identify what could go wrong and potential risks to achieving project success.

To convert physical materials into a finished building or structure, the contactor uses means and methods, which are systems and people. To put this in a computer analogy, the systems are the software and the people are the hardware. For the hardware (people) to perform at its fullest potential, it needs well-designed interactive software (plans, procedure, processes, systems, realistic goals, timely information, etc.). Most contractors have a process with which to drive production. The industry has a process with which to manage quality. But it is left up to the contractor to manage the safety of its workforce. This is where most of the issues reside because safety is generally managed using safety standards and industry practice. These are sufficient methods but inferior for achieving excellence. This is borne by the fact that well over a thousand construction workers die and many thousands more are injured on construction project every year.

Subcontractor Selection

Virtually all construction projects involve subcontractors to some extent, some more than others. The project team needs to manage the safety of its crews as well as those of the subcontractors to manage overall project productivity, quality and safety effectively. Subcontractor selection may be done at the organizational level and then handed over to the project manager to manage. Subcontractor selection is a key element in project injury prevention. The organization must have a defined selection process with robust criteria to accomplish this. Every subcontractor must clearly understand the project's safety expectations as well as the resulting consequences for failing to achieve this.

Then it falls to the project manager to establish the climate on the project to ensure safe work practices. A key opportunity in establishing such a climate is in the preconstruction meeting with the subcontractors. The project manager should require the attendance of not only the subcontractors' project key staff, but some of their senior management as well. It is at this venue that safety expectations should be discussed along with all other project requirements. If the subcontractor's project staff voice any reservations, then the project manager should have the senior subcontractor personnel present resolve this with their project staff. There should be absolutely no ambiguity as to the expectations, the metrics to be used to assess compliance with the exceptions and the resulting consequences for failing to meet them. This resolves a multitude of potential future issues.

Project Changes

Projects are not static. If anything, changes in conditions and scope are inevitable. So no matter how carefully the project is planned and set up, things will change. Construction by its nature has a large supply chain, diverse goals and objectives, various levels of expertise and experience, and therefore, it has much variability, uncertainty, diversity and potential for changing situations resulting in the possibility for failure to deliver on promises. This inevitably has an impact on the project "risk picture." If the contractor does not have a good method of anticipating change or contingency plans for addressing them, then time pressures will create situations where risks will not be sufficiently understood and evaluated or taken on, resulting in negative outcomes.

Also, just as the schedule is routinely or, as required, updated, so should the risk matrix. The risk matrix must be reviewed with every changed condition to ensure that the "new" risk picture is understood, identified, evaluated and addressed. The project must also use a planning process that ensures that inputs are sufficient and supportive of the task's deliverables. A careful approach will identify risks that can be avoided or their impact mitigated or minimized and managed to an acceptable level.

It is important to agree upon methods for addressing inconstancies, discrepancies, disagreements or any other impediment to the smooth flow of project activities so as to avoid adding more stress to an already stressful situation.

It is generally accepted that projects rarely go from start to completion without some changes made during the life of the project. Scope changes can potentially require increases in time and money, but owners invariably put pressure on the contractor to incorporate the change within the contract timeframe so as not to extend the project end date. This usually involves redoing the logic ties and sequencing in the schedule or increasing manpower, working longer days, etc. This situation invariably increases the risk, which sometimes is not addressed effectively or ignored completely. This potentially puts worker safety in jeopardy.

Execution

In the realm of safety, execution plays a key role. In most cases, organizations have adequate safety programs, but they do not follow them on site. Supervision makes excuses for not executing. To execute effectively, there needs to be an underlying strategy, a plan or a process. There also must be resources and people to make it all happen in the right place at the right time in the right way. Another problem may be that in safety, traditionally we dart from concern, to issue, to priority, to focus, to program, to incentives, to punishment to whatever, responding to symptoms rather than to fixing the underlying structural issues.

Execution links the basic elements of organizations, which are the strategy process, the operations process and the people process. The people process is the most critical as it is the people who evaluate situations, devise strategy and then execute to make it an operational reality. Strategy can be defined as organizations' plans for achievement. The systems provide the means for supporting that plan, and the people activate the plan. These three elements must function harmoniously so as to achieve the organization's goals and objectives. If inherent weaknesses exist in the strategy or processes, then discrepancies are created increasing project risk. This in turn will cause people to deviate from procedures and take on greater risk, which eventually may result in an incident with injurious outcomes.

Conflict Management

Due to the large supply chain, which includes a large number of organizations and an even larger number of people, there will be quite a few communication interfaces. All of these different entities will have differing goals and objectives. So if project management does not make an effort to create some semblance of both horizontal and vertical alignment, there is bound to be conflict. Conflict will add to already existing uncertainty, which will increase the risk picture. These could contribute to generate adverse outcomes in safety on the project.

A situation may arise where there may be an imbalance between what is good for the project and what is good for the organization. This may arise from a situation of vertical (silo) structures, specialization or misunderstanding. Conflict may exist between what is better for one subcontractor than another or any number of potential situations. Therefore, it is important to agree upon methods for addressing inconstancies, discrepancies, disagreements or any other impediment to the smooth flow of project activities so as to avoid adding more stress to an already stressful situation.

Conclusion

Construction projects require a stated vision that is clearly communicated and understood by everyone involved. If safety is to be managed on an equal basis with other project functions, then it must be part of the vision statement. The organization should devise a strategy to ensure that the vision can be achieved. The project should use a planning process that not only looks forward, but also backward so as to better understand potential risks in the system by looking at output and then determining the inputs. Every project should have a risk matrix or log that is updated regularly. Project management must simultaneously manage the four project basic elements of time, money, resources and scope to ensure that the work proceeds in such a manner that it meets the project's productivity, quality and safety expectation.

There should be a method to anticipate changes, quickly address discrepancies and effectively respond to challenges so as to eliminate or at least diminish project risk. The project team should review the means and methods to ensure that they are aligned with the vision for the project and integrated into the strategy as well as understood by every participant on the project. This will ensure the proper execution of the work so as to achieve the organizational as well as project goals. ✪

Peter Furst, CSI, CSP, ARM, REA, CRIS, *has more than 15 years' experience consulting to a variety of firms, including architects, engineers, construction, service, retail and manufacturing organizations. Furst has more than 20 years' construction experience with a multinational general contractor, Turner Construction Company, serving as estimator, superintendent and project manager on numerous projects.*

Furst teaches at the University of California-Berkeley as well as at California State University-East Bay. He has published numerous articles in professional publications and electronic media. He is also a regular speaker at national conferences and events and has won several awards.

Furst holds a B.S. in Construction Engineering with honors, a bachelor of Architecture (Professional Degree) with honors as well as an M.B.A. with emphasis in Management from California Polytechnic State University. He may be contacted at peter.furst@gmail.com.

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Safety Professionals & the Latino Workforce
Women in Safety Engineering
Young Professionals in SH&E

As a Construction Practice Specialty member, please be sure to take full advantage of your membership. Similar benefits also are available to the other 28 industry and interest groups.

ANSI/AIHA/ASSE Z10-2012 Now Available

The newly revised standard, "American National Standard for Occupational Health and Safety Management Systems" (ANSI/AIHA/ASSE Z10-2012), was approved by the American National Standards Institute on June 27, 2012.

The American Industrial Hygiene Association (AIHA), past secretariat of the Z10 Accredited Standards Committee (ASC Z10), has relinquished all of its secretariats to ASSE, making ASSE Z10 ASC secretariat and copyright holder of the 2012 and 2005 versions of the Z10 standard.

The Z10 standard provides an overall blueprint for widespread benefits in health and safety, as well as in productivity, financial, performance, quality and other organizational and business objectives. The standard's seven sections include Management Leadership and Employee Participation, Planning, Implementation and Operation, Evaluation and Corrective Action, Management Review. Appendices address roles and responsibilities, policy statements, assessment and prioritization, audit information and much more.

There is widespread agreement that the use of management systems can improve organizational performance, including performance in the occupational health and safety arena.

The Z10 standard also provides critical management systems requirements and guidelines for improvement of occupational health and safety. Experts from labor, government, professional organizations and industry formulated this valuable standard after extensive examination of current national and international standards, guidelines and practices.

Z10-2012 Scope & Application

The Z10 standard defines minimum requirements for an occupational safety and health management system. It applies to organizations of all sizes and types.

Z10-2012 Table of Contents

Z10-2012 Foreword

Quality, environmental and occupational health and safety (OHS) management systems are used by many organizations in the U.S. and around the world. Quality and environmental systems are frequently in conformance to international voluntary consensus standards, or they share many basic concepts and principles with them. The development of international OHS standards and guidelines is a more recent phenomenon. Many organizations operate their own occupational health and safety management systems (OHSMS), while others use systems that conform to available guidelines. Until the development of this voluntary consensus standard, there was no U.S. OHSMS consensus standard.

There is widespread agreement that the use of management systems can improve organizational performance, including performance in the occupational health and safety arena. The Occupational Safety and Health Administration's Voluntary Protection Program relies on management system principles and has reported success in improving occupational health and safety performance among participating companies. In addition, the American Chemistry Council reports success in improving environmental performance of participating organizations. The major professional health and safety organizations are also on record in support of management systems as effective tools for improving health and safety performance, as well as for contributing to the overall success of the business. Finally, the fact that many organizations in the U.S. and abroad are implementing management systems in occupational health and safety is evidence that these systems add value to their businesses.

In 1999, the American National Standards Institute (ANSI) officially approved the ANSI Accredited Standards Committee Z10, with the American Industrial Hygiene Association as its Secretariat, to begin work on a U.S. standard. A committee was formed with broadly representative members from industry, labor, government, professional organizations and general interest participants. The committee examined current national and international standards, guidelines and practices in the occupational, environmental and quality systems arenas. Based on extensive deliberations, they adapted the principles most relevant from these approaches into a standard that is compatible with the principal international standards as well as with management system approaches currently in use in the U.S. The process of developing and issuing a national consensus standard is expected to encourage the use of management system principles and guidelines for occupational health and safety among American organizations. It may also yield widespread benefits in health and safety, as well as in productivity, financial performance, quality and other business goals.

Figure 1 OHSMS Cycle

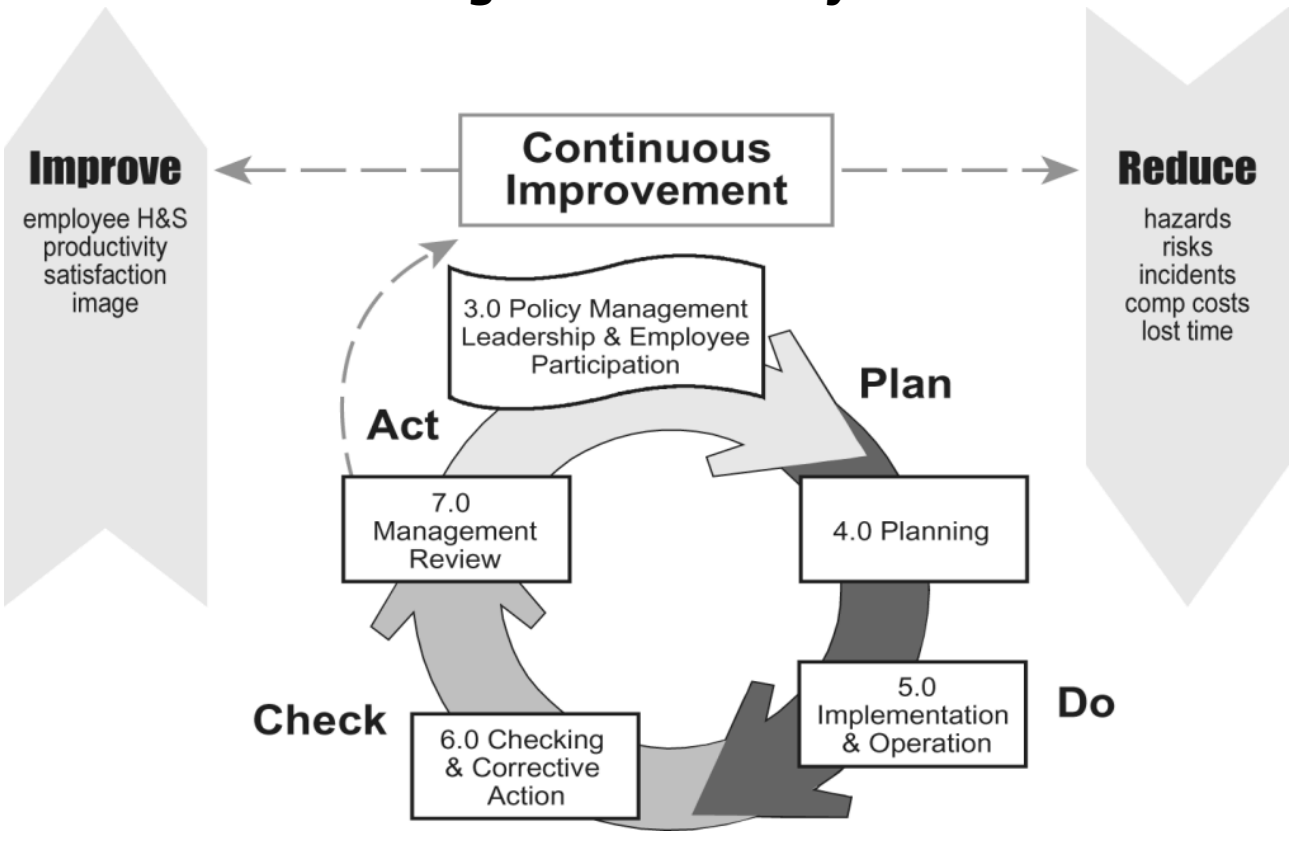

Table 1 Summary of Key Z10 Provisions & Changes for 2012

Key provisions	Key 2012 requirement changes	Enhanced guidance
SECTION: MANAGEMENT LEADERSHIP AND EMPLOYEE PARTICIPATION		
Responsibilities of top management OHS policy Employee responsibility and participation	Policy availability (external) Alignment with performance, financial and recognition systems	Leadership communication Integration with business systems Reliance on system performance Employee participation (enhanced appendix)
SECTION: PLANNING		
Initial and ongoing reviews Assessment and prioritization of OHSMS issues Development of objectives and implementation plans	Clarification of initial and ongoing reviews Risk assessment and mechanisms for employee involvement Periodic review and update	System versus operational planning Conducting an initial review Risk assessment methodologies (new appendix) Use of quantitative and qualitative objectives
SECTION: IMPLEMENTATION AND OPERATION		
Implementation of operational elements Use of the hierarchy of controls Inclusion of processes for: • design review • management of change • procurement of supplies and services • contractors • emergency response Provision for education, training, awareness and competence Communication about the OHSMS Documentation and control of records	Risk assessment process Consultation with contractors Timely training and competent trainers Employee participation	Inclusion of hazard topics within operational elements Risk assessment (new appendix) Employee participation in management of change Design review and management of change Contractors and procurement checklists (new appendix) Competence assessment
SECTION: EVALUATION AND CORRECTIVE ACTION		
Process to • monitor, evaluate and communicate hazards, risks and controls • investigate and analyze work-related incidents • conduct, document and communicate OHSMS audits • provide prompt corrective action for serious injury and illness conditions • corrective/preventive actions and closure	Assessment of legal and other requirements Audits by competent persons with independence	Using incident investigations to understand root-cause failures Explanation of audit and independence (enhanced appendix) Assessing residual risks in corrective/preventive actions
SECTION: MANAGEMENT REVIEW		
Annual management review for suitability, adequacy, and OHSMS effectiveness Determination of future OHSMS direction	None	None

Z10 Historical Materials

•Article on Z10 Standard (Spanish)
•ANSI/AIHA Z10-2005: The New Benchmark for Safety Management Systems
•Legal Perspective: ANSI/AIHA Z10-2005 Standard, Occupational Health & Safety Management Systems
•Special Issue of The Compass
•The Paradigm Shift in Standards Thinking: Management Systems vs. Specification
•Z10 PowerPoint Presentation

Government Recognition

•Federal Register Vol. 75, No. 174
•UT Workers' Compensation Fund: Best Practices in Safety

Links

•ANSI Essential Requirements
•ASSE Info on Standards Development Process
•Official Memorandum of Understanding Between OSHA & ANSI
•Office of Management & Budget Circular OMB-A119
•Position Statement on Consensus Standards
•Safeguarding: Are ANSI Standards Really Voluntary?
•What's the Difference Between an OSHA Rule and an ANSI Standard?
•ANAB Accreditation for Occupational Health and Safety Management Systems ✪

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INTERVIEW

CPWR Studies Aging

Aging Employees and the Importance of Workforce Analysis

Sue Dong, Ph.D., is data center director for CPWR—The Center for Construction Research and Training as well as the principal investigator for the Center's study of today's aging workforce. In this interview, Dong discusses the need for this study and the status of the Center's research thus far.

The study found that working primarily in construction trades exacerbates the decline in overall health, increasing likelihood of functional limitations, arthritis, back problems, chronic lung disease and stroke in later years.

SUE DONG

BP: ***Please provide a brief description of your professional background and of your position as data center director for CPWR.***

SD: I have been working on construction safety and health surveillance for 15 years and have been CPWR's data center director for the past nine years. I successfully completed several large NIOSH projects in recent years and currently serve as principal investigator of three NIOSH projects.

BP: ***CPWR's National Construction Research Center is conducting research on today's aging construction workforce. Why has the Center decided to do this, and what is your role in the research project?***

SD: Through our safety and health surveillance, we found that construction workers are aging. The average age of construction workers increased 5 years in the last 2 decades. This age trend was also reflected in injury statistics. For example, the highest proportion of work-related deaths shifted from those aged 25 to 34 years to those aged 45 to 54 years during the last 15 years. It is known that health deteriorates with age, as does an individual's health status. Due to possible declining cognitive and physical abilities with age, older workers are more vulnerable to risks at worksites. However, the available evidence on the relationship of workplace conditions on health and functional capacity is scarce, and how chronic illnesses contribute to disability and early retirement are poorly understood. Our project aims to address these research gaps by assessing how job exposure, health behaviors and the aging process affect workers' safety performance and health outcomes, particularly in their later years. I am the principal investigator for this project.

BP: ***What are the greatest SH&E hazards facing today's aging construction workforce?***

SD: Because construction work is highly physically demanding and entails exposures to hazardous substances, the accumulative exposures contribute to a variety of chronic health problems, e.g., musculoskeletal problems, lung and respiratory disorders, as well as other problems that worsen during aging, such as hearing and vision deficits. The prevalence of chronic diseases grows in the aging construction workforce; at the same time, risk of serious or fatal injuries increases at an alarming rate among older construction workers.

BP: ***What methodology is the Center following while conducting its research?***

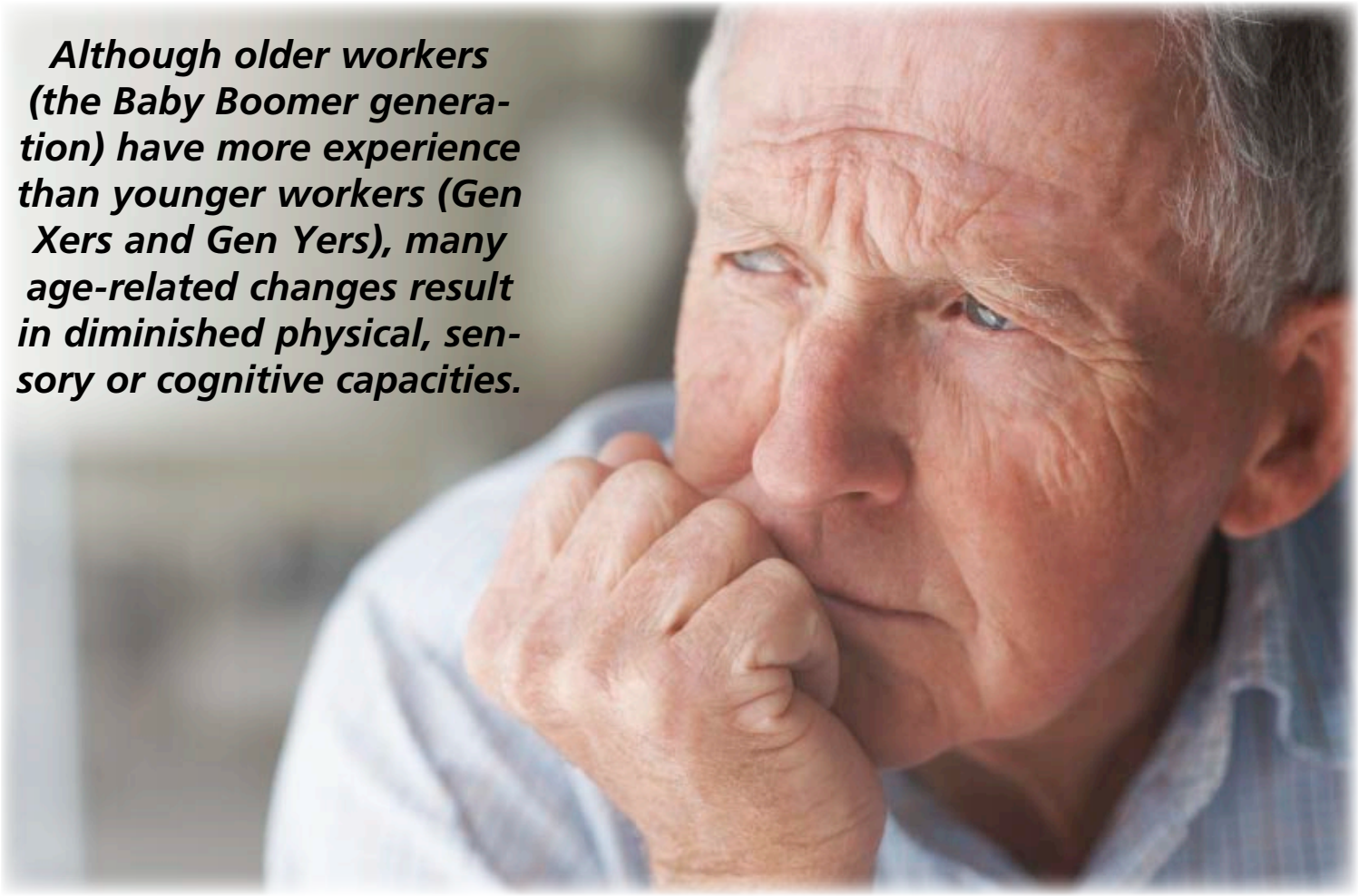
SD: We are conducting a series of cross-sectional and longitudinal studies using a multitude of large nationally representative datasets. We want to identify key risk factors contributing to safety and health of older construction workers and to examine health disparities between older and younger workers. At the same time, we closely monitor the overall trends of the aging workforce through our regular surveillance activities.

BP: ***Today's workforce includes three generations of workers—Baby Boomers, Gen Xers and Gen Yers. How has this impacted safety in the construction industry, particularly among aging workers?***

SD: Although older workers (the Baby Boomer generation) have more experience than younger workers (Gen Xers and Gen Yers), many age-related changes result in diminished physical, sensory or cognitive capacities. In addition, health behaviors may also be different between older and younger generations. As a result, the patterns of injuries are different between older and younger workers. While younger workers have a higher rate of nonfatal injuries (possible associated with inexperience), older workers are more likely to have serious injuries requiring longer time away from work, hospitalization and fatalities.

BP: ***Has the Center's research produced any surprising results thus far?***

SD: We have done several studies recently. Our analysis of fatal falls revealed that decedents who were 55 years or older had a significantly higher likelihood that death was caused by a fall, after controlling for major demographic and employment factors. The fatal fall rate for older roofers (the occupation with the highest risk of fall injuries) was nearly triple the rate for younger roofers (under age 55). We also found that



falls from ladders caused a much larger proportion of deadly falls in the older decedents than in younger decedents.

Our longitudinal study found that working primarily in construction trades exacerbates the decline in overall health, increasing likelihood of functional limitations, arthritis, back problems, chronic lung disease and stroke in later years.

BP: ***How can national voluntary consensus standards, such as the A10 Standards for Construction and Demolition Operations, be incorporated into construction SH&E practices to protect aging workers from occupational injuries? Are any specific standards particularly helpful or effective?***

SD: All of these standards are crucial to establishing thresholds for protecting worker safety and health. While younger construction workers are required to have safety and health training when they enter the construction industry, older workers may need refresher training. Moreover, given that the aging workforce will continue, injury prevention, job redesign and ergonomic solutions should take age factors into consideration.

BP: ***Where will the Center publish the results of its research? How will those in the construction industry be able to make use of the research results?***

SD: We disseminate our results in a variety of communication venues—peer-reviewed journals, data briefs and reports via the CPWR website and Internet library (eLCOSH), progress reports to NIOSH, presentations at local, national and international conferences, etc. We also compile a clearinghouse of data in the Construction Chart Book (now in its fourth edition), covering different topics, including the aging workforce. In addition, we disseminate our data by responding to data requests from all stakeholders (government, construction contractors, workers, reporters, labor union, researchers, etc.) on a regular basis. Many people use our data and findings in their research papers and presentations or in designing intervention programs.

BP: ***Do you feel other demographic groups within the construction industry also warrant more focused study?***

SD: Our study also focuses on Hispanic workers, immigrant workers, self-employed workers, temporary workers and workers employed in small establishments.

BP: ***What are the Data Center's plans and goals for the rest of the year?***

SD: The lifespan study is a 5-year project (2009-14). We will continue to work on it. ✪

Sue Dong, Ph.D., *is data center director for CPWR—The Center for Construction Research and Training. Her research focuses on construction safety and health surveillance, health services and costs of occupational injuries and illnesses. She holds a Doctor of Public Health from George Washington University and a master's degree in labor studies from the University of Massachusetts-Amherst. Dong is the principal author of the* Construction Chart Book: The U.S. Construction Industry and Its Workers *and many other publications.*

Construction Practice Specialty Roundtable

The Construction Practice Specialty (CPS) conducted a key issue roundtable discussion at ASSE's Safety 2012 in Denver, CO. The roundtable focused on construction regulations. Carl Heinlein was the moderator and Cynthia Garcia was the recorder.

Attendee Demographics

•Thirty-three professionals attended (9 females and 24 males).

•The following industries were represented: insurance brokers; contractors; subcontractors; heavy civil; industrial; owners; building maintenance companies; engineering contractors; labor union; hotel/hospitality; utilities; and consultants (including a retired Kentucky OSHA inspector).

•Most of the companies work in multiple states, and approximately half work with the Army Corp of Engineers. Approximately 6 work internationally.

Main Points

•OSHA is in standards process and is working on 1) prerules for backing (up) operations (equipment) and 2) confined space in construction (an attendee commented that California has state-specific rules). The standards improvement process takes approximately 13 years to get approved and incorporated.

•When did the federal crane regulations come out? How many know the rules?

•Rule has been out for more than 1.5 years. Most states have not touched it because there many holes and confusion; some operating engineer unions are assisting compliance officers by training them.

•Cal-OSHA's **website** has a side-by-side comparison between federal and Cal-OSHA crane regulations, including signal and rigging.

•OSHA is currently working on the following directives: highway; cranes and derricks; trench and excavation; and a field operations manual (rulebook for compliance officers).

•OSHA is working on 1) a guidance documentation regarding cranes and derricks, including letters of interpretation and frequently asked questions (FAQs); 2) updating the 100 most frequent citations; 3) a construction website update to include structural courses on construction and prevention through design; and 4) residential construction. OSHA is on the lookout because of too many injuries and fatalities (updating FAQs on floor joists, decking and roofing safe practices).

•What is building information modeling (BIM), and is it being integrated into safety? Is BIM more applicable in vertical construction?

•Washington State has a residential construction safety site. Construction SH&E professionals should think about translating materials (not just Spanish) and using pictograms in lieu of words for safety manuals and postings/signs.

•OSHA has a major campaign on heat and fall protection. Visit OSHA's **website** for free information and guidance documentation (companies can add their logo to these documents). Also point subcontractors to this resource.

•Revised HazCom standards are now available. Train on global harmonization and material safety data sheets/safety data sheets.

•Important topics are silica, hearing protection, I2P2, nail guns, trenching and noise.

•Hawaii offers a 5% workers' compensation credit if a contractor has a written I2P2. Pennsylvania also used to have a discount for the same. Guidance documents are available on OSHA's **website** for nail guns, trenching and noise. In Pennsylvania, West Virginia, North Dakota, Hawaii, South Carolina, Nevada, California and Texas, state programs are under scrutiny by OSHA because they have not been able to meet benchmarks. This started as a result of 11 fatalities in South Carolina.

•The Voluntary Protection Program (VPP) used typically for industrial plants has expanded. However, it is struggling with funding.

•The issue with privatizing VPP creates an uneven playing field because not all contractors can afford to pay. Also, California VPP does not match the federal program, so it is looking to close the gap and change it.

•Subprequalification based on experience modification and incident rates. How many work with ISNet? How many like it?

•The price structure for ISNet is high. It only looks at general safety (not site-specific), and a management misconception exists that "rubber stamping" means the contractor is safe and "good to go." Harvard has its own software; it reads and scores subcontractor safety programs (with smart technology) and also checks for site-specific and trade-specific assessments. Other programs are available, but the administrative costs are high.

•Quality is key for losses.

•Skanska is funding research and partnering with Georgia Tech to explore using BIM for job safety analysis and for creating virtual orientation models. It is

focusing on prevention through design, constructability and the end user (including sequencing, forming systems and fall protection).

•What lagging and leading indicators are people using and how are they using it?

•Compliance-wise, people are using safety inspections for leading indicators. Resources include **Compliancewise.net** and OSHA Form 33, which is free.

•How many have U.S. Department of Transportation (DOT) vehicles, and how do we address DOT issues?

•About four attendees dealt with DOT vehicles. A general comment was made about not spending enough time with fleet safety; most deal with post accidents. Some suggestions for addressing fleet safety include 24/7 motor vehicle reports, How's My Driving? stickers, telematics, expanding fleet safety guidelines to rental cars and personal cars on company business, vehicle allowance policies, color-coding vehicles/equipment (weight and licensing per DOT regulations), fatigued driving, driving while distracted, load securing, housekeeping and dangers of the aging workforce getting in and out/on and off vehicles.

•OSHA is drafting an interpretation on whether or not a forklift if considered a crane. The general thought is that if it can pick horizontally and move vertically with a jib, then yes.

Safety 2012 Information

Several Safety 2012 presentations are available on SafetyNet, the social networking site accessible to all conference attendees. If you have not yet signed up for SafetyNet, you can still do so by visiting **http://safetynet2012.ning.com** and creating a profile.

If you could not make it to Safety 2012, speaker videos can be accessed **here**. Audio recordings of select Safety 2012 concurrent sessions are also now available for purchase and download. To view available sessions, click **here**. Proceedings will be available in **Members Only** soon, so keep an eye out.

Safety 2013 will be held in Las Vegas, NV, from June 24-27, 2013. CPS will sponsor several sessions and hold its annual face-to-face meeting so please plan to join us if you can.

Construction Practice Specialty Recognition

At Safety 2012, the Council on Practices & Standards (COPS) recognized Cynthia Garcia as the 2012 Construction Practice Specialty (CPS) Safety Professional of the Year. Garcia is CPS's Body of Knowledge Chair and a member of ASSE's Leadership Conference Committee. She is a frequent contributor to CPS's **LinkedIn** group site and is considered a best resource for fielding any technical questions that CPS receives from its members or other safety professionals. Her willingness to help, professionalism and technical knowledge make her an ideal recipient of this award. Click **here** to view the press release on Garcia. Click **here** to learn more about the COPS awards program.

In addition to the recognition CPS and its members received, CPS also sponsored seven sessions, a Construction Forum and a roundtable, held its annual face-to-face meeting and networking event and had its leaders attend the Council and House of Delegates meetings. ✪

Best of the Best

ASSE and the Construction Practice Specialty would like to congratulate Peter Furst for his notable article, "Influence: An Avenue to Success." This article was one of 17 selected for inclusion in the 2011-12 Best of the Best publication. Click **here** to view this compilation of top technical material. Visit **www.asse.org/ps** for more information on the groups represented in this publication or **www.asse.org/JoinGroups** to get the most out of your ASSE membership by adding a practice specialty. ✪

Welcome New Members!

We want to thank everyone who has remained a loyal member of the Construction Practice Specialty (CPS) and welcome the following members who recently joined. We currently have more than 3,700 members. If you have any colleagues who might be interested in joining CPS, please contact **Krista Sonneson** to request an information packet or visit **www.asse.org/JoinGroups** for more information. If you know anyone who might be interested in joining ASSE, please contact **customer service**.

Mohanad Abdullah, RC
Tyrone Anderson, Sturgeon Electric
Shankara Babu, NRG Energy Services
Francis Beard, Bonitz
Priti Behera, Praxair India
Mario Benegas, Castrol Brasil
Thomas Brennan, Total Safety Consulting
Garrett Burke, Constructsecure
Calvin Burns, URS Flint
Edward Clayton, Chevron
Paul Colangelo, Click Safety
Neal Davis, PSE&G
William Dean-El, Forest City Erectors
DeniseDekrey, Windy Ridge Enterprise
Gayle Dowdy, Cox Communications
Robert Durkee, MN OSHA
Matthew Foti, City of Norfolk
Brian Fuller, All Crane Rental
Dyon Gaddy, It's Always About Safety
Amy Gordon, Liberty Mutual Group
Douglas Gunter, Yates Construction
Dan Hannan, Willis of Minnesota
Michael Harbaugh, Protective Testing
Harvey Harris, Merryman-Farr
Jonathan Hart, SSI
Fengyuan He, Hamilton Sundstrand
Paul Hernandez, Shell Deer Park
Paris Holloman, Kiewit
Roy Howard, Flintco
Christopher Isabelle, Calpine Corp.
Nick Jackson, Davis H. Elliot
Michael Jacobs, Tualatin Valley Water District
Matthew Janet, Pacific Gas & Electric
Ogbeide Joachin, Alcon Engineering Nigeria
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Paul Johnston, Nordic PCL Construction
Dustin Jones, XL Group
Luke Jurotich, Keesen Landscape Management
William Kirk, Tennessee Equipment Supply
Selena Kollaja, BMB Risk Management
William Kramer, Integrated Risk Solutions
Gaddam Kumar, Larsen & Toubro Construction
Ashok Kumar, Shapoorji Pallonji Qatar
Jeffrey Leblanc, Querbes & Nelson
Derek Leopardi, Babcock & Wilcox Construction
Mark Ling, Sterling Boiler
Tysen Lutz, Kiewit Offshore Services
Robert Lynch, CB&I
Jesse Mattner, Camp USA
William McCaffrey, Kinsley Construction
Janet McCord, Balfour Beatty Construction
Don McKee, Atlantic Plant Maintenance
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M. Nachiappan, Larsen & Toulino
Philip Newton, Golden Valley Electric
Zachery Oliver, Preston Pipelines
Mark Pendley, ERM
Nageswararao Perivelia, Larsen & Tourbo
James Posey, United Mechanical
Jim Ragual, Genentech
Kumaran Rajakumar, PT Punj Lloyd Indonesia
John Robertson, Sunland Construction
Robbie Robison, Champion Windows
Neil Ross, MJW Consolidated
Cynthia Roth, Ergonomic Technologies
Barry Stelzer, Carpenters District Council
Eric Tofte, Evergreen Safety Council
Gregory Tormey, Herrero Construction
Jeremy Tucker, MCC Group
Mark Tylec, WDW Resorts
Daniel Van Syoc, Elkhorn Construction
Janardhanam Varatharajan, Larsen & Toubro
Marc Victoriano, Entergy Services
Sarel Wendelstadt, PT Freeport Indonesia
Ward Wenzel, Dominion
George Wilborn, CPS Energy
Barbara Wilkie, National Grid
Ron Wood, Smoot Construction

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Sincerely,
Eddie Greer, Director of Business Development, Board of Certified Safety Professionals
Michael Murray, Managing Director, AON Risk Solutions
Brenda Kay Zylstra, Development Coordinator, ASSE Foundation

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