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Protection Update

is the newsletter for the ISEA Partnership for Worker Protection program. It is intended for anyone who specifies, purchases or uses personal protective equipment, and those who regulate it. *Protection Update* is published every two months and distributed without charge, and also is available on ISEA's website — www.safetysite.org.

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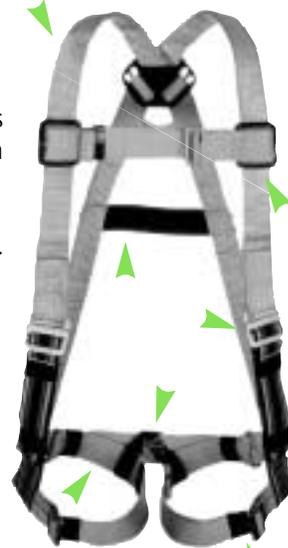
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Selecting a Full-body Fall-protection Harness

By Douglas Mercier
Daloz Fall Protection

(Editor's Note: The following is the first of a two-part series on fall-protection harnesses. In part two, which will appear in the next *Protection Update*, Mr. Mercier will discuss harness inspection and maintenance.)

What makes one worker wear the proper fall-protection equipment, and use it in the correct manner while another may not? On one hand, workers must receive the proper training on adjusting, inspecting and maintaining the equipment. On the other hand, no matter how thorough the training, a worker might leave the equipment behind if it isn't comfortable.



"Our workers like a comfortable harness," said a director of construction safety operations at a company in North America. "They'll wear a harness if it's comfortable."

Most safety directors also agree that any fall-protection equipment that is difficult to don and hard to adjust has less chance of being used. Before purchasing any fall protection equipment, buyers should note that harnesses are not all the same. Everything from harness construction to strap placement can be compared and contrasted. All of these elements do make a difference in the comfort and safety the harness offers the user. Harness buyers and users should also remember that harnesses do not last forever, and must be inspected for signs of wear and replaced when necessary. ▶4

Selecting Other Components of Personal Fall-arrest Systems

By Scott Paul
DBI/SALA

(Editor's Note: The following is the first of a two-part series. In part two, which will appear in the next *Protection Update*, Mr. Paul will address the question: Can fall protection be made less cumbersome?)

Personal fall arrest systems (PFAS) consist of three elements: a full-body harness, designed specifically by work-place application; a shock-absorbing lanyard or self-retracting lifeline engineered to take the strain out of a fall; and an anchorage connector guaranteeing the

most secure base connection possible.

Arguably the most fundamental component of any PFAS is the full-body harness. A good quality, well-designed harness should retain its shape when taken off to avoid tangling and snagging. It should be comfortable to wear throughout the workday and offer adjustability across the chest, shoulders and leg straps. Additional options such as belts and seat slings can provide additional support, but are a matter of personal preference.

More importantly, the best harnesses will effectively spread the impact forces of a fall to the areas of the body best able to take the strain. Body belts were worn in the days before harnesses. During a fall wearing just a ▶6

WHAT'S NEW IN ROAD CONSTRUCTION SAFETY



ASSE Construction Safety Symposium and Updated Fall Protection Book

The American Society of Safety Engineers (ASSE) will hold a **Symposium with a fall protection focus** November 8-9 in New Orleans. Meanwhile, the society recently released the third edition of the *Introduction to Fall Protection* book by J. Nigel Ellis, Ph.D.

Open to all, the symposium will provide best safety practices in the field of construction, and will feature sessions on fall protection, steel erection standards, crane and scaffolding safety, and confined space emergencies. Falls consistently account for the greatest number of fatalities in the construction industry, ASSE said.

The newly updated edition of *Introduction to Fall Protection*, focuses on how to eliminate fall hazards through pre-planning fall protection in the workplace, and incorporates

new findings and technologies since it was last released in 1993.

Symposium registration information is available through ASSE Customer Service, (847) 699-2929, and you may register at www.asse.org. The updated fall protection book is \$54.95 for ASSE members and \$89.95 for non-members; orders may be placed through the customer service number or by visiting the website.

New Website Encourages Construction Careers

The Construction Industry Manufacturers Association (CIMA) has launched a new website — www.ConstructMyFuture.com — to provide information and career opportunities in the construction industry, specifically repair technician, machine operator and manufacturing careers. ●

Protection Briefs for Road Constructors



The Miller/Troll™ Fall Prevention & Protection Training Toolbox™.

New products from **Daloz Fall Protection** include the Miller® SafEscape™ Controlled Descent/Self-Rescue System, the Miller® TranScendor™ Cable Climbing System, the Miller® DuraFlex® Python™ harness series, and the Miller/Troll™ Fall Prevention & Protection Training Toolbox™. The SafEscape device offers life-saving safety to crane workers, the TranScendor system provides protection to workers involved in ladder climbing, and the Python harness offers wrap-around comfort, increased flexibility and tangle-free donning, Daloz reports. The toolbox includes communications materials to help safety professionals address all aspects of fall prevention and protection. For more information, call (800) 873-5242 or (814) 432-2118, or visit www.cdaloz.com.

DBI/SALA offers a wide range of **training programs and consulting services** to deal with construction companies' fall protection and rescue issues, in addition to a full line of fall-protection products. "With our site surveys we can identify the hazards, recognizing alternatives to resolve them, and gather the information necessary to build your fall protection program," the

company says. For an informative brochure, call (800) 328-6146 or visit www.sala-group.com.

H. L. Bouton Company, Inc., North Safety Products and Uvex have introduced new eye and face protection products. **Bouton's** new Shark Hunter™ series of safety eyewear helps promote increased voluntary compliance in the workplace. The Shark series currently features the 6400 Mako™ and the 6500 Hammerhead™. For more information, call (800) 426-1881 or visit www.hlbouton.com.

North's new line of eye and face protection includes safety glasses, goggles, faceshields, welding helmets and accessories. Featuring styles such as The Edge™ and Wave™ safety glasses, North eye and face protection products are tested in house and at independent laboratories, the company says. For more information, contact (800)430-4110, in Canada (888) 212-7233, or visit www.northsafety.com.

The **Uvex** Falcon™ and cool 2™ protective eyewear deliver strong performance in styles that promote compliance. For more information, contact Uvex at (800) 343-3411 or visit www.uvex.com. ●

Eye Safety in Construction: How to Protect Your Eyes

By David Roll
H. L. Bouton Co.

Construction is one of the largest and most dangerous industries in the United States. Bodily harm resulting from misuse of equipment and negligence can range anywhere from cuts and scrapes to loss of sight or limbs, and even death. Because of all the hazards a construction worker encounters, injuries occur frequently — and eye injuries rank among the most common.

It has been estimated that every day nearly 1,000 eye injuries occur in workplaces across America, costing over \$300 million a year in medical expenses, lost work time and worker's compensation. That's \$300 million a year in costs that could have been avoided by wearing the proper protective eyewear. And of course no amount of money can compensate for the loss that some accident victims suffer — the loss of sight.

Factors and hazards that contribute to eye injuries

The main factors that contribute to eye injuries on the job are not wearing eye protection, or wearing the wrong kind of eye protection. Obviously, not wearing eye protection is dangerous. What most workers do not realize, however, is that wearing the wrong kind of protection can be just as hazardous. In fact, most workers who have suffered eye injuries while wearing protective eyewear realize later that the trauma was inflicted from objects or chemicals going around or under their ill-fitting safety eyewear.

Unfortunately for construction workers, their line of work puts them in contact with just about every eye hazard known to the safety industry: impact, ultraviolet radiation, liquid splash and infrared radiation. Many

construction tasks generate flying debris that can seriously injure the eyes. From wood and paint chips to dirt, concrete particles and even nails, a construction worker's eyes are constantly and most often at risk from impact hazards.

Working outdoors, UV rays are present in ordinary sunlight and can cause great damage to the eyes. Because construction often takes workers both indoors and out, workers in this industry often don't perceive this hazard to be a serious one. Construction workers also come in contact with highly toxic cleaning chemicals, paints and adhesives. For this reason, liquid/chemical splash hazards are prevalent. Contact from these substances can cause momentary vision loss or even blindness, not to mention burning and discomfort of the eyes.

Last but not least is infrared radiation. The torch welding and cutting that construction workers perform produces an invisible hazard that can damage the cornea and retina of the eye. In extreme cases it can even cause blindness.

The Proper Eyewear For The Job

OSHA standards require that employers provide workers with effective eye protection. To be effective, the eyewear must be appropriate for the hazard encountered and must fit properly and comfortably (eye protective devices should allow air to circulate between the eye and the lens). Protective eyewear and equipment should fit snugly and correctly. Straps, frames and other parts should be sturdy and fit comfortably.

For protection, the safety industry offers a number of industrial strength safety spectacles, safety goggles, faceshields, welding

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Safety eyewear from ISEA members is designed to protect against impact hazards found in construction.

PHOTO COURTESY OF UVEX

FALL PROTECTION HARNESS

from page 1

Harnessing Size

Many manufacturers rely on universal sizing — which means a harness should fit the average person. However, universal sizing is designed to fit most — not all — workers.

Some harnesses have a minimum adjustment on the chest strap that is unusable by shorter workers. The ability to adjust a harness correctly is important, but some manufacturers' adjustable straps are complicated. Employees may have trouble adjusting the leg straps or they may have the D-ring adjusted improperly.

Because some harnesses may cut and pinch when tightened, workers sometimes wear their harnesses too loose in trying to achieve a comfortable fit. One solution is a full-body harness with stretchable webbing that allows workers to flex and bend. There are even stretchable harnesses designed especially for women. All of these design features have been developed to ensure PPE comfort.

How safe is the safety harness?

Most buyers would expect a harness to meet specific safety standards, but surprisingly, some brands don't. Before purchasing fall-protection products, ask these questions:

- Where are the products manufactured? Does the facility have ISO 9001 certification? ISO 9001 certification proves facilities meet strict international standards in quality assurance for design, development, production, installation and service.
- Do the products meet ANSI and CSA standards? Not all harnesses meet ANSI

standards, even though they may be labeled as meeting these standards.

- Does the fall protection manufacturer have a Statistical Process Control (SPC) program? Fall-protection products are only as good as the quality of the raw materials/components.
- Does the manufacturer participate in Safety Equipment Institute (SEI) or any other recognized third-party testing of their products?
- Does the manufacturer have qualified engineers who design and test products? Ask for documented results for dynamic drop tests and static load tests.



Strapping down safety

Harness construction is anything but standard. Some harnesses are manufactured without a back strap. In the event of a fall, the person may actually fall out of the back of the harness. Chest straps should be easy to adjust, and must withstand a fall without tearing or breaking. In test cases with inferior quality harnesses, some chest straps have broken from fall forces.

Hardy hardware that's comfortable

A harness should have hardware that's sturdy, but not oversized and awkward. At the same time, connecting devices (shock-absorbing lanyards) should attach easily to the hardware. For example, the D-rings on some harnesses are so small that attaching a lanyard can be a tricky process. Harness hardware also poses a hazard if it has sharp edges. The edges can cut into harness webbing, or can be positioned in such a way that they dig into the skin in the event of a fall. To protect workers from hardware

How to Don a Harness in Six Easy Steps That Could Save Your Life

1. Hold harness by back D-ring. Shake harness to allow all straps to fall in place.
2. If chest, leg and/or waist straps are buckled, release straps and unbuckle at this time.
3. Slip straps over shoulders so D-ring is located in middle of back between shoulder blades.
4. Pull leg strap between legs and connect to opposite end. Repeat with second leg strap. If using a belted harness, connect waist strap after leg straps. Waist strap should be tight, but not binding.
5. Connect chest strap and position in mid-chest area. Tighten to keep shoulder straps taut.
6. After all straps have been buckled, tighten all buckles so that harness fits snugly but allows full range of movement. Pass excess strap through loop keepers.

Remember, harness styles vary; always refer to instructions enclosed with the harness. (By Douglas Mercier, Dalloz Safety).



injuries, the components must be appropriately manufactured and assembled.

Hardware with exposed springs should be avoided. Exposed springs, especially on friction buckles, can be easily disabled or removed. Reliable hardware construction is important, and should be certified to meet the requirements set forth in ANSI Z359.1 and CSA standards.

Avoiding tangled webs

Webbing may seem like an innocuous item that would be similar in all cases, but it varies drastically from brand to brand. Some harnesses use webbing that folds over and tangles, and that can be as frustrating as handling a tangled telephone cord. Harness webbing should be sturdy, and the yarns should be tightly woven so the webbing slides easily through the hardware. If webbing snags when it glides under hardware, it can result in cuts to the webbing. Once cut, the harness must be taken out of service.

Examining harness webbing is extremely important. Excessive abrasion will cause webbing to fray and pucker, eventually ending the service life of the harness. Stitching is just as important as the structural integrity of the harness. The stitching must not rip away during a fall.

Harness webbing should resist the effects of sun, heat and moisture for an extended period of time. If a harness is used in an electrical environment, it must also resist conductivity. If it's used in a harsh chemical environment, the webbing must be able to resist toxic chemical fumes and splashes.

Pliable padding

Padding is meant to make the harness more comfortable, but if it's difficult to adjust or is made of material that becomes brittle in cold weather, it can become another problem that discourages proper use of the harness.

How does the harness work?

It sounds too simple to address, but clear, easy-to-read instructions should accompany every harness. In the best-case scenario, the instructions will be in more than one lan-

guage — English, French and Spanish, for example. All instructions should include explicit guidelines for usage, maintenance and inspection.

It all adds up to safety

When purchasing a harness, make sure you buy the correct harness for the appropriate application. Remember, employees will more readily and properly wear a comfortable harness that easily adapts to lanyards and other

PHOTOS COURTESY OF
DALLOZ FALL PROTECTION



connecting devices. The more comfortable the harness, the better your company's chances of employees wearing them, and that increases safety and regulatory compliance, and most importantly saves lives. ●

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OTHER COMPONENTS

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body belt, the impact forces went straight to the spine or midsection. Today's harness designs channel those forces to the fatty tissues of the thighs and buttocks as well as to areas of the body like the chest and shoulders.

An important feature when choosing a harness is the functionality and location of the D-Ring. The D-Ring is the main connection point of any harness. A front D-Ring attached to the chest strap is critical for safe connection to a ladder-climbing safety mechanism such as a fixed cable or rail system. A back D-Ring, used for connection to a lanyard or self-retracting lifeline, will keep you in an upright position in the case of a fall. Side D-Rings are generally used for restraint and work positioning.

A note of caution for wearers of harness-

es made of stretch fabric: take into account the stretch of the harness in calculating your fall distance and wear the harness snug enough so that the chest strap will not catch under your chin in case of a fall.

The Remaining Components You Will Need

Selecting the remaining components of the personal fall arrest system — lanyards, self-retracting lifelines, horizontal lifelines and anchorage systems — depends very much on the nature of the work and location. But first, it is critical to understand the potential fall distance and clearance. When your anchorage point is located at or higher than your D-Ring, your fall distance will be that of your lanyard plus the activated portion of the lanyard's shock. If your anchorage point is lower than your D-Ring you must add to your fall distance the additional distance from your D-Ring to the lower anchorage point. A special shock-absorbing lanyard is available for this application.

Shock-absorbing lanyards have become the modern standard in fall protection. Manufactured from tough webbing with a tensile strength anywhere between 5,750 and 9,800 pounds, they guarantee performance. The best shock-absorbing lanyards will reduce the arresting forces on a worker during a fall to approximately 900 pounds, which is half the maximum allowance regulated by OSHA standards. Lowering the arresting forces means less impact to the workers body. As with harnesses, Kevlar® webbing for flame resistance is a must for welding applications; some models feature self-locking snap hooks that can easily be connected to the D-Ring or anchorage point without having to remove welding gloves.

Standard shock-absorbing lanyards will reduce the arresting forces to 900 pounds when a worker falls six feet or less. This is the case when the worker is connected to an anchor overhead. Specialized shock-absorbing lanyards are available to arrest falls and still meet OSHA standards when the workers are connected to anchorage points at their feet. Connecting at your feet will increase the fall distance to up to 12 feet.

Fall Protection Safety Checklist

Work situation: Where are you working and what are the physical challenges and limitations of that space? What are the major risks involved? Do you need free fall protection or restraint?

Mobility: How will you get to your work area? Will greater mobility be an issue? For areas that can only be accessed by ladder, do you have the appropriate harness connector and lifeline. Will a self-retracting lifeline work best for you?

Scale of project: Are you working two stories up or 22? The scale of a project will govern the size of lanyard or lifeline you need. Smaller scale projects may require less heavy-duty lifelines and give you the option to use lightweight models that increase mobility and reduce fatigue on the job.

Overhead Connection: Where is your best anchorage point? Will you be able to attach a lanyard or lifeline to an overhead beam, or will you need a beam anchor?

Equipment Check: Have you checked all of your equipment prior to each use, making sure that lanyards and harnesses are not damaged and lifeline indicators are intact? If you suspect equipment is damaged, replace it immediately.

And always ask for assistance from fall protection experts. If you cannot find a system or do not understand the existing systems, contact a fall protection manufacturer. Their engineers will design systems that meet your needs. (By Scott Paul, DBI/SALA)



Self-retracting Lifelines (SRLs)

Self-retracting lifelines are popular alternatives to lanyards. Extending and retracting automatically, SRLs are neatly encased in protective housing and provide the best mobility without the chance of added tripping, snagging or dragging hazards to already high-risk work environments.

Selecting the best self-retracting lifeline for the job depends on where your work is located. If you're working in a plant maintenance situation, typically a 30-50 foot model will cover all of your needs. On oil-rigs, a maximum length 175-foot model is best. This can be anchored at the top of the rig and allow you maximum mobility to go about your work.

Always monitor clearance for the self-retracting lifeline to avoid snagging and potential damage. Better models come with an impact indicator, showing whether the SRL has suffered an impact from a fall. In addition, some self-retracting lifelines are sealed to protect critical fall protection elements from harsh environments.

Anchorage Connectors

Anchorage connectors have come a long way since the early days when workers would often wrap their lanyards around a beam and go about their business. The constant movement would cause abrasion, creating pinch points in the lanyard and wear that could go unnoticed.

Today the most popular and widely used connector is the D-Ring connector, which bolts or welds easily to any beam. The tie-off adapter is a close second and provides a 5,000-pound-minimum tensile strength

webbing connection that wraps around an overhead beam. It is important when locating a connector that it is at your back D-Ring level or higher. Having the anchorage point at this level will limit your fall distance and the forces that will be applied to your body in the event of a fall.

Often there is no overhead anchorage point. If this is the case and you must connect to an anchorage point at your feet, there are a couple of anchorage options. A girder grip is one possibility, which features a pivoting wing-bar that provides the girder lock on steel beams from 0.25 to 1.25 inches thick. A fixed-beam anchor can also be quickly installed. Featuring a dual beam grip, this model easily adjusts to fit larger beams. For complete mobility, there are also sliding beam anchors, which work equally effectively at your feet or overhead.

Horizontal Lifelines

If you're working in building construction without flooring or in areas with limited anchorages available, the horizontal lifeline system is a solution. Usually lightweight, they can be transported quickly, and easily set up at different areas of a construction project or at new work sites. Horizontal lifelines vary in design, but a classic model will offer two anchors that connect easily to any given beam. Once attached, you simply run a cable between the anchors and hook up your lanyard to the cable. All these systems offer great versatility and are ideal for bridge construction and repair jobs, plant maintenance and steel frame construction. ●

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Buckingham Manufacturing Co.

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Elk River, Inc.

Klein Tools Inc.

Mine Safety Appliances Co./Rose Manufacturing

North Safety Products

Sellstrom Manufacturing Co.



PHOTOS COURTESY OF DBI/SALA

High-visibility Standard and Materials Reflect Industry's Goal to Save More Lives

By Gregg Liederbach
LaCrosse Rainfair Safety Products

A 55-year old construction worker dies after being struck by a vehicle while crossing a major highway. He and his co-worker had been assigned to use a boring machine to drill holes for the installation of steel pipes beneath the highway. According to the report as found in the National Institute for Occupational Safety and Health's guide to *Building Safer Highway Work Zones*, the victim was crossing the highway in order to mark the exit location of a hole being drilled when he was struck by a car whose driver did not see him. According to witnesses, the victim was not wearing a high-visibility safety vest.

Unfortunately, this sort of tragedy is not uncommon in the highway construction industry. According to the

hours a day in any weather condition. ANSI/ISEA 107-1999 establishes minimum criteria for high-visibility gear that industry and users deem necessary to adequately protect workers from the hazards associated with low visibility.

The standard specifies that high-visibility apparel be made of background material that is fluorescent red-orange, yellow-green or a combination of these, and retroreflective material that is placed so that the worker is seen from 360 degrees. The standard defines three garment classifications, based on worker hazards and tasks, complexity of the work environment or background, and vehicular traffic and speed.

While the standard is a voluntary, industry-consensus standard, many government enforcement agencies, such as OSHA, the Federal Highway Administration and Federal Aviation Administration are referencing it. Employers have been cited for failure to provide adequate personal protective equipment (PPE) for workers who face low-visibility hazards, and garments that meet the 107 standard have been referenced as a means of complying with government regulations for worker safety.

The standard was developed because there is a large variability in illumination conditions during the day and night due to weather and daylight savings. It is common for construction crews to put in overtime and end up working into the dusk or dark when it wasn't planned for. Garments that meet the standard will protect these workers in all lighting conditions.

Safety apparel manufacturers have responded to the new standard by offering unique garments and outerwear that protects construction workers in any weather condition or lighting. The standard has initiated the development of products with unique designs and application patterns that help make the construction worker visible as a person.

A survey by Ohio-based Strategic

NIOSH, each year more than 100 workers are killed and 20,000 are injured in the highway and street construction industry. About half of the vehicle-related fatalities are caused by passing motorists. The other half results from vehicles and equipment operating in the work zone. Many of these lives lost — these fathers, mothers, husbands and wives — may have been prevented with the improved visibility of the workers.

The International Safety Equipment Association (ISEA) developed the American National Standard for High-Visibility Safety Apparel (ANSI/ISEA 107-1999) to help ensure optimum visibility for workers 24



Marketing Associates reports that the leading reasons that road construction workers do not wear personal protective equipment (PPE) when needed are: their employers do not require or enforce its use and the PPE lacked comfort; or hampered job performance (*Protection Update*, Summer 2001). The ANSI/ISEA 107-1999 standard and manufacturers of garments address these obstacles, and now comfortable, protective

high-visibility garments that meet an industry standard are available and being used by workers across the country. ●

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EYE SAFETY

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goggles and shields that are designed to protect from all of the eye hazards a worker encounters.

Once you purchase safety eyewear, proper maintenance is vital to maintain protective integrity. Safety eyewear should be inspected frequently. Scratched and dirty lenses reduce vision, cause glare and diminish impact resistance. If the frames are broken and bent, chances are your eyewear does not fit properly and may contribute to accidents. Safety eyewear will not withstand repeated impact or abuse and it should be inspected regularly, and replaced.

Safety eyewear education also is a must. Most eye injuries occur while workers are performing their regular tasks. Workers not wearing protection who sustain eye injuries often claim they thought it was not necessary. Safety eyewear should always be distributed accompanied by information specifically stating where and what kind of eyewear should be used for which jobs.

What You Have To Lose If You Do Not Use Protective Eyewear

In an average day, road construction workers often find themselves in situations where there are flying particles or debris, falling objects, swinging objects, sparks and even hazardous chemicals, not to mention vehicles whizzing by a few feet away. The opportunity for an accident is enormous.

If you refuse to wear properly fitting protective eyewear you can quite easily lose

your sight. Losing your sight could mean losing your livelihood, not to mention your view of people and the beauty of the world around you. Construction is a dangerous business, putting workers in hazardous situations every day. Safety eyewear needs to become a part of the equipment used to get jobs done.

An Ounce of Prevention

If you've been unfortunate enough to suffer an eye injury, you know how painful it can be. That discomfort can make examination and treatment difficult, but these steps are key to warding off infection and saving sight. Medical help should be sought as soon as possible. What any doctor or industry expert will tell you is that the most effective "first aid" is prevention. Make sure you put some extra pairs of safety spectacles and goggles in your tool box and you'll be prepared to prevent eye injuries no matter where your job takes you. ●

High style enhances user acceptance of modern safety eyewear.



PHOTOS COURTESY OF H.L. BOUTON CO.

Working near traffic at the mammoth Springfield Mixing Bowl construction project on I-95 in Northern Virginia.



PHOTO FOR ISEA BY RANDY SANTOS

Work Zone Safety Around the Nation

Road Worker Safety Gets National Attention

Congress and safety leaders from around the country focused increased attention on road construction work zone safety — for workers and motorists — during summer activities in the nation's capital.

The U.S. House Subcommittee on Highways and Transit held a hearing in late July on how to make work zones safer. Earlier that month, road construction industry influentials, including ISEA, participated in a Highway Work Zone Safety Summit organized by the Associated General Contractors (AGC) and co-sponsored by the Federal Highway Administration (FHWA), U.S. Occupational Safety and Health Administration (OSHA), American Association of State Highway and Transportation Officials (AASHTO), and *Engineering News-Record* magazine.

During the House hearing, FHWA's Vincent Schimmoller said that his agency plans to issue an advance notice of proposed rulemaking on work zone safety next January or February. Other witnesses suggested ways to reduce work zone injuries and deaths, including taking steps to prevent contractors from taking safety shortcuts. Rep. Sue Kelly (R-N.Y.) called attention to the importance of personal protective equipment for workers.

More than 110 individuals representing 40 different organizations with a direct stake in work zone safety took part in the earlier "Summit," whose purpose was to develop a national game plan for reducing accidents, injuries and fatalities in highway work zones. AGC is organizing a coalition to follow up in five key areas: (1) campaign to communicate more and better information to the public about work zones, (2) model work zone safety unit for drivers' education, (3) nationwide policy for using positive barriers between workers and traffic on road projects, (4) law enforcement policy focusing on making work zones safer, and

(5) model specifications for including safety in construction contracts.

Visit ISEA, Members and Hear About Work Zones at Safety Congress

ISEA and many member companies will exhibit at the National Safety Congress, September 23-26 in Atlanta. Those interested in construction worker safety are encouraged to stop by the ISEA exhibit — Booth 3179 — for a list of manufacturers who will be showing their newest personal protective equipment products and technologies and the latest ISEA literature to help keep workers out of harm's way.

ISEA Technical Director Janice Comer Bradley will participate in a September 26 panel on the "Unique Hazards for Roadway Workers; How to Protect Them Better." Other "roadway workers" panelists will include Ken Brown of ISEA member company 3M and Stephanie G. Pratt of the National Institute for Occupational Safety and Health and a member of ISEA's Safety Equipment Users Council. A September 25 panel entitled "Traffic Work Zone Safety" will focus on the importance of flagger training, orange barrel safety and other work zone safety programs.

OSHA Rule to Protect Against Falls Will Take Effect Next January

The U.S. Occupational Safety and Health Administration's (OSHA's) steel erection rule (see *Protection Update*, March/April 2001), designed to protect iron workers by addressing major causes of injuries and fatalities, including falls, will become effective Jan. 18, 2002 — six months later than originally planned.

In other OSHA news, the agency has decided to include construction firms in its **Site-Specific Targeting (SST)** program, which is designed to determine the most dangerous workplaces to inspect. Construction firms will be among those receiving OSHA surveys in 2002 that will ask for their 2001 injury and illness data. ●

BOTTOM-LINE BENEFIT

Fall Protection—

Bottom-line Benefit in Road Construction

Road, bridge and tunnel builders pay out about \$46 million more for fall-from-height injuries each year than it would cost them to equip their fall-hazard-exposed workers with fall protection gear and make sure they use it. That is the bottom line for construction companies, according to figures compiled from the U.S. Bureau of Labor Statistics (BLS), National Safety Council (NSC), American Road and Transportation Builders Association (ARTBA) and ISEA.

How so? Start with 574,000 hazard-exposed road construction workers in the private sector (ARTBA). Apply an understanding that about 25% of those workers should be wearing fall protection at any given time (safety director's estimate), meaning that 143,500 workers constitute the universe of road construction workers who need fall protection at any given time. Apply a 59% usage rate among road construction workers for fall protection when needed (ISEA 2001 survey).

Therefore, at any given time in road construction there are 84,665 fall-hazard exposed workers wearing fall protection and 58,835 who are left unprotected. Now, multiply 58,835 by the cost to equip each of those workers with one fall-protection ensemble (\$270), yielding a total cost of \$15.9 million to equip all workers who should be protected.

Now multiply the total annual number of fall-from-height injuries in road construction, which is about 2,200 (based on conservative extrapolation from BLS data) by the \$28,000 cost per on-the-job injury (NSC), yielding a total cost for fall-from-height injuries in road construction of \$61.6 million. Subtract the \$15.9 million cost to equip all unprotected workers from that figure to derive the \$45.7 million more that road construction companies pay out each year for fall-from-height injuries.

"Wearing fall protection will not necessarily prevent every fall-from-height injury, and we are not saying that it would," said ISEA President Dan Shipp. "But this data does suggest that road construction companies are spending a whole lot more each year to cover the cost of fall-related injuries than they would pay to equip their workers properly and make sure they are wearing their fall protection when they need it." For details on the statistical basis of this cost-benefit profile, contact ISEA's Joe Walker, (703) 525-1695 or jwalker@safetyequipment.org. ●



PHOTO COURTESY DALLOZ SAFETY. MONTAGE BY SAM FERRO

Letter to Editor

I got the summer issue of *Protection Update* and appreciated your article on lack of enforcement of PPE usage by employers. I agree with you: So many eyes, lives and limbs could be saved if people would just think for a second and then follow the regulations provided by OSHA, especially about PPE.

Sincerely,
John Blasingame, Training Coordinator
Construction and General Laborers Local 1140, Omaha, NE

SAFETY EQUIPMENT

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Rescuers save a painter suspended in his fall-protection harness from the Ambassador Bridge.

DETROIT FREE PRESS PHOTO



Heaven Can Wait for These Fall-protected Workers

A painter was thankful to be alive after the second scaffolding collapse within eight months at the **Ambassador Bridge** left him dangling in his safety harness high above the harbor line of the Detroit River, which forms the border between Detroit, MI, and Windsor, Ontario, Canada. Ontario officials at the June 21 accident said suspension points on the scaffold failed, causing it to dangle vertically. The bridge's road surface is 135 feet above the harbor line, and the accident occurred high above the roadway, according to the *Detroit Free Press*. Last November, a similar accident on the bridge took the life of a Windsor man who was involved in the same repainting project on the 72-year-old span.

In **New York City**, two construction workers thanked their lucky stars for fall protection as they dangled 10 stories above the ground after a passing truck snagged a rope, toppling the scaffold that supported them, according to *New York Newsday*. The July 16 accident occurred as the workers were trying to lower the scaffold while installing a fire escape on a building in lower Manhattan. Fire officials reported that the truck driver ignored warnings to wait while the scaffold was lowered and plowed through the scene, *Newsday* said. It took rescuers about 10 minutes to pull the workers to safety.

Fall protection also saved the life of a building maintenance man suspended in his harness six stories above the ground after a scaffold gave way on August 8 in **Houston**. *The Houston Chronicle* reported that onlookers held their breath as firefighters rescued the man in his safety harness and another worker, who stood on the edge of the collapsed scaffold clutching his lifeline. A ladder truck was used to rescue the free-hanging workman. Meanwhile, a lone firefighter rappelled down the 12-story building to hook the second worker into a stronger harness so that he could be pulled up to safety, according to the *Chronicle*. ●

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