

Protection

UPDATE

News from the International Safety Equipment Association

MARCH/APRIL 2001

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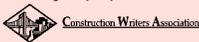
Protection Update

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.safetysiteequipment.org.

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Construction Writers Association

ISEA

INTERNATIONAL
SAFETY EQUIPMENT
ASSOCIATION

Protecting the World of Concrete

By Daniel K. Shipp
President
International Safety Equipment Association

With 1,557 exhibits covering three-quarters of a million square feet of space and 77,000 attendees, the World of Concrete in Las Vegas really was quite a show. ISEA exhibited at this year's event — the first time we have been at WofC — as part of our program to raise awareness of personal protective equipment (PPE) in the road construction industry.

From our perch in the exhibition hall lobby, we had an opportunity to talk with hundreds of safety-conscious road construction professionals, to direct traffic to our member companies exhibiting at the show, and to visit other companies who should become part of the ISEA family. A number of *Protection Update* readers stopped by our exhibit; thanks. And we got around to visit other exhibits, including those outdoors, which one of my colleagues dubbed "Disneyland for Big Boys and Girls."

Out there, we stood with others to watch an array of interesting demonstrations. We saw the latest in high-performance concrete saws, jack hammers, drills, cement mixers and cutters, screeds, and concrete tamping and smoothing machines — all the things to make the constructors' job easier, faster and better for their customers. We also heard plenty of noise, and we saw concrete chips flying and dust in the air.

What we wished had been more in evidence was PPE to make the demonstrators, and especially the observers, safer. It seemed that those doing the demonstrations probably would not think of performing their jobs without proper protection. But outside of the work environment, many forgot about



PHOTO COURTESY WORLD OF CONCRETE

the hazards to which they and those nearby were exposed.

As far as we know, no one was injured during the product demonstrations. The story could have been different had a flying chip lodged in the eye of someone who was not wearing safety glasses, or had an exceptionally loud noise permanently damaged someone's ability to hear. What we cannot know is whether the lack of protection could lead to chronic hearing loss later in life through continuing inattention to hearing conservation. Or whether a similar situation may exist with regard to respiratory protection in situations where silica dust or lead may be present.

As we continue our road construction outreach program, ISEA pledges that we will do our part to raise awareness about the importance of PPE for demonstrators and observers at exhibitions such as World of Concrete, as well as at the job site. Perhaps our readers have some ideas how we can help. We would like to hear from you. Please write, email or fax me at ISEA. Together we will create a safer construction workplace one worker — or observer — at a time. ●

WHAT'S NEW IN SAFETY EQUIPMENT

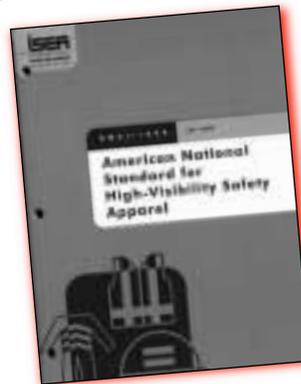


Editor's Note: Each issue of *Protection Update* will feature innovations in safety equipment. For information on ISEA member companies mentioned, visit the *Buyer's Guide* on www.safetysafetyequipment.org.

New Traffic Manual Notes Importance of 'High-Viz' Apparel

The updated *Manual of Uniform Traffic Control Devices (MUTCD)* notes the importance of high-visibility apparel, with particular attention paid to flaggers. "Millennium Edition" sections covering worker protections are:

- **6D.02**, which states, "Temporary traffic control zones present temporary and constantly changing conditions that are unexpected by the road user. This creates an even higher vulnerability for workers on or near the roadway." Section 6D.02.B suggests that workers close to the motor vehicle traveled way should wear bright, highly visible clothing (see Section 6E.02).
- **6E.02**, which states, "For daytime work, the flagger's vest, shirt or jacket shall be either orange, yellow, yellow-green, or a fluorescent version of those colors. For nighttime work, similar outside garments



shall be retroreflective. The retroreflective material shall be either orange, yellow, white, silver, yellow-green or a fluorescent version of those colors, and shall be visible at a minimum distance of 300 meters (1,000 feet). The retroreflective clothing shall be designed to clearly identify the worker as a person."

The *American National Standard for High-Visibility Safety Apparel (ANSI/ISEA 107-1999)* is designed to protect workers who are exposed to moving vehicle traffic. The standard describes three classes of garments, each one suitable for different work environments. An informative booklet about the 107 standard and high-visibility products from ISEA member companies may be obtained by sending an email to pubs@safetysafetyequipment.org or writing to ISEA, 1901 North Moore St., Suite 808, Arlington, VA 22209. Ask for *Products to Keep You Visible Day or Night - In Any Light*. ●

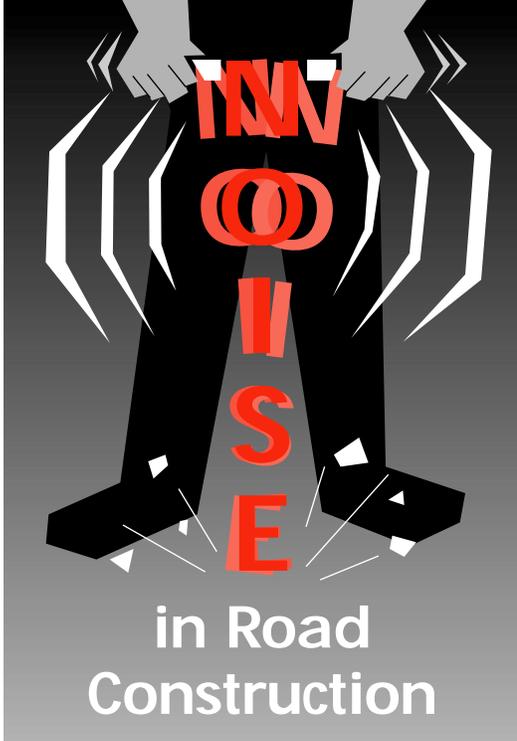
Protection Briefs for Road Constructors

● A new booklet containing useful information about hands and skin and how to protect them while working in the construction industry is available from **Marigold Industrial**. Included in the 15-page *Grasp Construction Hand Protection Report* is information about chemical

and physical hand hazards and the injuries they can cause, how to assess and select hand protection, the costs of neglecting hand protection, and how to find the right glove for the job.

For a free copy, phone 800-733-0988, fax 800-786-4564, email gloves@marigoldindustrial-americas.com, or visit www.marigoldindustrial.com.

● A new brochure from **Mine Safety Appliances Co.** describes the company's product line for the construction industry. The 16-page *MSA Safety Equipment for Construction* booklet provides information on head, eye, face, hearing, respiratory and fall protections; and on gas detectors. For a free copy, phone 800-MSA-2222, fax 800-672-9010, or visit www.MSAnet.com/SPN. ●



By Jeffrey Birkner
Moldex-Metric Inc.

Noise during road construction, repairing and paving can be just as hazardous as any other type of noisy environment. In fact, it may be more difficult to control and also more difficult to ensure that hearing protectors are being used because of constant changes in location, the size of a typical road construction site, and the transience of the work force.

The sources of noise in road construction include construction and repair equipment, as well as passing traffic. Noisy equipment such as jack hammers, dump trucks, cement mixers, cement cutters, electric saws and tamping machines, as well as noise generated from hand tools such as sledge hammers and drills easily can exceed the OSHA limit of 90dBA and require the use of hearing protection devices (HPDs).

Wearing hearing protectors might seem like a nuisance to some employees, but it is extremely important especially in trades such as construction where the workforce and worksites are changing constantly. The most common complaints by employees are that the protectors are uncomfortable, hot and create a situation where they cannot hear warning signals or fellow workers.

All these objections can and must be overcome to protect one's hearing when noise levels exceed the allowable limits. Many types of hearing protectors are available to meet employee needs in terms of both compliance and user acceptance. Selecting an appropriate device that does not overprotect

the user can alleviate concerns about hearing warnings and fellow employees. Adequate training and allowing the employee to get used to the device also can help.

Determining whether or not hearing protection devices are necessary is a three-step process — (1) recognize that a noise problem may exist, (2) evaluate the extent of the potential problem, and (3) control it. Generally, OSHA requires that controls be accomplished through engineering methods and administrative controls before the use of hearing protection devices. Since road construction situations are dynamic, many times the only practical means of noise control is through the use of personal protective equipment (PPE).

Recognizing the problem is simple for construction sites. Most construction equipment is noisy and if you must raise your voice to be heard by someone three feet away, a problem exists. **Evaluating the problem requires a qualified professional such as a safety director or industrial hygienist to perform the measurements and analyze the results.** Either a sound level meter or noise dosimeter will be used. If noise levels exceed 90 dBA as an eight-hour, time-weighted average, hearing protectors must be worn. As a minimum, each worksite must comply with OSHA regulation 1926.52 and any state or local regulations. Although not explicitly required by the OSHA construction regulation, a program that includes annual audiograms, training and record keeping is recommended.

Choosing the right hearing protector requires careful consideration of several elements. Many construction sites are predominated by low-frequency noise; earmuffs can be very helpful in these types of environments. Maintenance of the hearing protectors also must be considered. Construction sites can be very dirty and therefore employees may want a product that requires little or no maintenance such as earplugs or hearing bands. Another very important factor is how the hearing protector interacts with other personal protective equipment such as hard hats, eye protection and welding hoods. ●

ABOUT THE AUTHOR

Jeffrey Birkner is Vice President of Technical Services for Moldex-Metric Inc., Culver City, Calif., a manufacturer of band-type hearing protectors and earplugs. Moldex-Metric is an ISEA member company. Birkner may be contacted calling 800-421-0668, or jeffreyb@moldex.com, or log onto www.moldex.com.

Making the Nation Aware of Work Zone Safety

National Work Zone Awareness Week (NWZAW) was observed April 9-13 to remind all Americans about the importance of driving safely through the thousands of road construction work zones throughout this country.

The week kicked off with an event April 9 on the National Mall in Washington. The focal point of the mall event was a "Traffic Cone Cemetery," consisting of a cone decorated with black ribbon to commemorate each of the 868 persons who lost their lives in work zones during 1999, the last year of record. ISEA exhibited and presented at the event.

ABOUT THE AUTHORS
 Ingemar Olsson is national sales manager of professional trades, construction and welding channels for Dalloz Safety, Reading, Pennsylvania. Eric Patton is training manager for the company, which is an ISEA member. Dalloz Safety makes band-type hearing protectors, communication headsets, ear caps, earmuffs and earplugs. Contact Olson at 610-371-4505 or iolsson@dallozsafety.com; contact Patton at 610-371-7911 or epatton@dallozsafety.com.

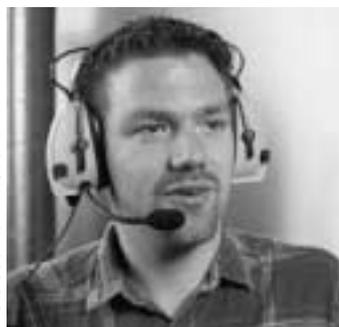


PHOTO COURTESY DALLOZ SAFETY

Communication headsets protect hearing and enhance jobsite communications at the same time.

Protect Yourself Against Jobsite Noise Levels

By Ingemar Olsson and Eric Patton
 Dalloz Safety

It's a noisy world. Yet, that news sometimes seems to fall on deaf ears in the construction industry. While a vast majority of construction workers wear hardhats, comparatively few protect their hearing.

The National Institute for Occupational Safety and Health (NIOSH) estimates that of the more than seven million employed in construction, about 420,000 are exposed to noise levels above 85 decibels (dB). Another study measuring noise at construction sites in Ontario found the average noise level ranged from 93.1 to 107.7 dB. NIOSH further estimates that 15 percent of workers who are exposed to noise levels of 85 dB and above eventually will develop some form of hearing impairment. That translates into more than 63,000 construction workers every year.

Why be concerned? Well, anything above the OSHA-specified 90-dB maximum permissible noise level increases risk of hearing loss when not wearing proper hearing protection. A good rule of thumb is that if you have to shout to communicate with co-workers at an arm's length, you need hearing protection. The noise levels from heavy machinery often exceed 90 dB. A rock drill can produce noise levels as high as 110 dB. Very heavy traffic can generate noise levels of 80 dB, but heavy vehicles are capable of producing noise levels of 90 dB.

Average Noise Exposure Levels (Daily Leq) By Type of Construction*

Type of Construction	Number Samples	Average dBA	Range dBA
Residential	7	93	87-96
Roads and bridges	16	93	84-100
Shop work	26	95	85-104
Maintenance	2	95	91-97
Sewer and water	17	99	85-108
Plant work	6	101	87-106
Power station	6	108	93-113

*Adapted from Sinclair and Hafidson, 1995

Simple hand-held devices are available to measure job-site noise levels. If it seems to be a close call, be conservative and wear a hearing protection device (HPD). Of course, there are those "old timers" who tell you you'll get used to the sound after a while. But you are not getting used to it; you really are losing your hearing. If you think that is not important, bear in mind that workers with hearing impairment show a 55-percent greater risk of accidents than those without, according to one study.

Not only should you wear hearing protection, but don't overprotect. Overprotection can be a serious problem if it prevents you from hearing your co-workers, machinery noises or all-important warnings, such as equipment back-up signals.

A drawback with many conventional hearing protectors is that they reduce noise too much in the speech frequency range. Consequently, the wearer can't hear naturally what's going on around him or her. HPDs may protect, but sounds reaching the ear, including speech, may be muffled and unnatural.

Another consequence of HPDs that protect too well is that workers may tend to remove them to hear better when they think they have to. When that happens, it significantly reduces the protector's effectiveness. For example, removing one earmuff for only 15 minutes during an eight-hour day reduces its effective noise reduction rating (NRR) from 30 to 17.

The NRR is a number frequently used to select hearing protection, and all hearing protectors must be labeled with an NRR rating as mandated by the EPA. However, while the NRR is considered to be a general indicator of the effectiveness of a particular HPD, don't base your selection solely on the NRR of any device.

The NRR of a hearing protector is derived from testing procedures outlined in ANSI standard S3.19-1974. Tests are performed in a controlled laboratory where noise-reduction measurements may be quite different than attenuation provided on a job site. NRRs also are calculated assuming equal exposure across the frequency range. The rating may be inaccurate if high or low frequencies dominate the noise exposure.

Generally, when selecting HPDs using the NRR, select a device with an NRR equal to the dBA level of the exposure minus 70 dBA. Using this procedure, choose an HPD that reduces the level of noise exposure at the ear to between 75 and 80 dBA, the optimum range for speech communication in

noisy environments. Any HPD also should be comfortable and fit correctly. Because higher NRRs and comfort tend to be mutually exclusive, uncomfortable HPDs are not likely to be worn as much as they should be.

What kind of HPD should you choose? Selection should be made carefully, considering the communication requirements and your hearing acuity. Selection is particularly important for individuals with existing hearing loss. There are plenty of products available on the market, such as disposable foam earplugs for as little as 15 or 20 cents a pair. Or you might want to invest in a more permanent, sophisticated HPD such as earmuffs. These can be bought for as low as \$20 a pair and will last for several years with proper care.

Another important element of a successful hearing conservation program is to get employees to "buy into" it. This must be done with the appropriate training and impressing upon them that once hearing is lost it does not come back. ●

Not only should you wear hearing protection, but don't overprotect.

Your Guide to Finding the Right Hearing Protection

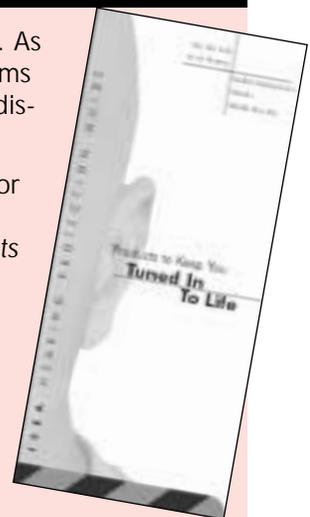
Hearing loss is an insidious injury that usually manifests itself over a period of years, not all at once. As a result, it may be difficult to convince employees that wearing those colorful little plugs or other forms of hearing protection could make a vast difference for the rest of their lives. They may worry about discomfort or not being able to hear their co-workers or equipment.

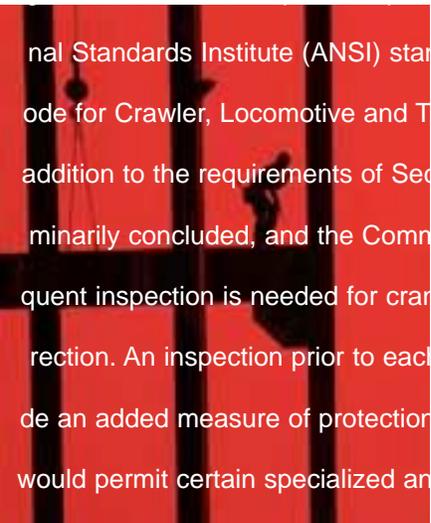
Fortunately, ISEA members today offer many solutions that provide comfortable hearing protection for all types of noise environments along with enhanced communication, allowing speech and other sounds to be heard in a natural way. These high-tech products are detailed in ISEA's booklet *Products to Keep You Tuned In To Life*.

The booklet describes the seven principal types of hearing protection (active noise-reduction headsets, band-type hearing protectors, communication headsets, ear caps, earmuffs, disposal earplugs, and reusable earplugs), lists ISEA member companies that provide each type of protection, and gives information on how to contact each company.

Hearing protection products from ISEA members meet the U.S. Environmental Protection Agency Noise Control Act of 1972 (40 CFR 211) and set the world standard for reducing harmful noises while allowing workers to stay in touch with their surroundings and communicate effectively with co-workers.

Individual copies of *Products to Keep You Tuned In To Life* are available without charge by sending an email to pubs@safetysystem.com or writing to the International Safety Equipment Association, 1901 N. Moore Street, Suite 808, Arlington, VA 22209-1762. The booklet also is available in bulk quantities for a nominal charge plus shipping; those interested should call ISEA. ●





New OSHA Rule Enhances Protection Against Falls, Falling Objects

The U.S. Occupational Safety and Health Administration's (OSHA's) new steel erection rule enhances protections for iron workers by addressing hazards that are major causes of injuries and fatalities, including those where personal protective equipment (PPE) can make a difference, such as falls to lower levels and protection against falling objects.

OSHA says that altogether, the new rule is expected to prevent 30 fatalities and more than 1,100 injuries annually and save employers nearly \$40 million a year. Other steel erection

hazards addressed by the standard, which was published in *the Federal Register* in January, include working under loads; hoisting; landing and placing decking; column stability; double connections; landing and placing steel joints; and lack of training.

The rule, which was developed by the Steel Erection Negotiated Rulemaking Advisory Committee, represents the first OSHA standard developed under the Negotiated Rulemaking Act of 1990 and the Labor Department's Negotiated Rulemaking Policy. It protects workers engaged in steel erection activities, including roads, bridges and tunnels. The final rule, which will take effect July 17, 2001, may be downloaded from www.osha.gov.

In related news, the National Institute for Occupational Safety and Health (NIOSH) plans to study occupational fall protection and prevention. If the project goes forward in 2002, as expected, NIOSH has said it will focus on PPE, technology, at-risk populations, and other aspects of the workplace that contribute to fall injuries and fatalities, and it will make prevention recommendations.

Also, NIOSH has published a book entitled *Worker Deaths by Falls: A Summary of Surveillance Findings and Investigative Case Report*, which looks at 90 occupational deaths by falls that occurred between 1982 and 1997. The book can be obtained from NIOSH by calling 800-356-4674. ●

OSHA, Contractors Form Partnership To Improve Construction Safety

The U.S. Occupational Safety and Health Administration (OSHA) and the Associated General Contractors of America (AGC) have created a partnership that officials from both organizations say will help focus efforts to make construction sites safer.

Under the partnership, AGC will create three levels

of safety and health performance — Red, White and Blue. To reach "Blue" status, contractors must meet safety and health guidelines that include (1) an occupational injury and illness rate 10 percent less than the industry average; (2) a comprehensive, site-specific written safety and health program based upon OSHA or American National Standards Institute (ANSI) guidelines; (3) agreement to serve as mentors to contractors who have yet to attain "Blue" status; and (4) employee involvement in all

aspects of the contractor's safety and health program.

In return for meeting specified criteria, OSHA, after making a verification inspection, will (1) not target the site for a planned or programmed inspection within the following 12 months; (2) conduct an unplanned inspection only in response to reports of imminent danger, a fatality or catastrophic accident, and a signed complaint; and (3) not issue penalties for other-than-serious violations that are promptly abated. ●

BOTTOM-LINE BENEFIT

Hearing Protection

Bottom-line Benefit in Road Construction

Road construction companies pay out some \$14 million more for hearing-loss injuries each year than it would cost them to equip all of their noise-hazard-exposed workers with hearing protection. That is the bottom line for road construction companies, according to figures compiled from the U.S. Occupational Safety and Health Administration (OSHA), 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 a 30.4% usage rate for disposable earplugs among road construction workers (OSHA), meaning that 69.6% (399,500) are not using earplugs (and most likely no other type of hearing protection, such as earmuffs). Multiply that number of workers by the cost each year to equip each worker with four pairs of earplugs a day (at 15 cents a pair) for 150 days a year (\$90), yielding a total cost of \$35.96 million to equip with earplugs all remaining road construction workers.

Now multiply the total number of annual hearing-loss injuries in road construction, which is about 1,780 (based on conservative extrapolation from BLS data), by the \$28,000 cost per on-the-job injury (NSC), yielding a

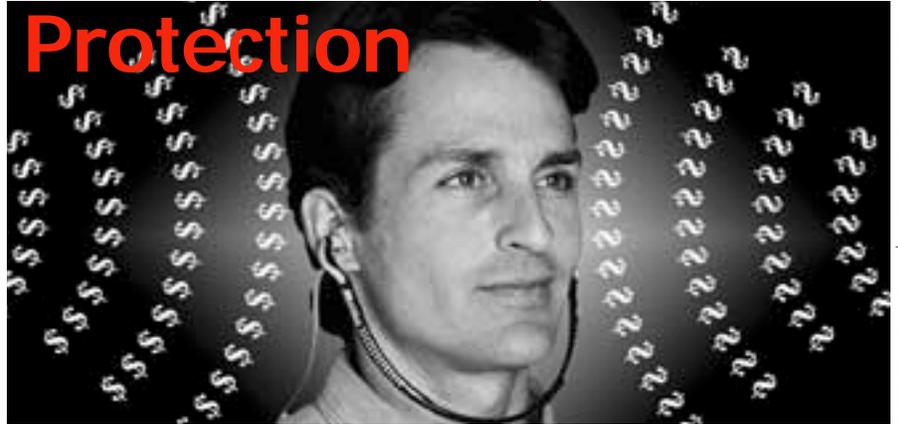


PHOTO COURTESY MCDIEX | PHOTO MONTAGE BY SAM FERRO

total cost for hearing-loss injuries in road construction of \$49.8 million. Subtract the \$35.96 million cost of equipping all unprotected workers from that figure to derive the \$14 million more that road construction companies pay out each year for hearing-loss injuries.

"We believe that wearing today's high-performance, comfortable hearing protectors — earmuffs as well as reusable and disposable earplugs — will protect against a vast majority of hearing-loss injuries, adding immeasurable quality of life for those who use them regularly — and their families — over the course of a career," said ISEA President Dan Shipp.

"This data suggests that road construction companies are spending a whole lot more to cover the costs of hearing-loss injuries each year than they would pay to equip their workers properly and make sure they are wearing their earplugs or muffs." For details on the statistical basis of this cost-benefit analysis, contact ISEA's Joe Walker, 703-525-1695 or jwalker@safetysystem.org. ●

Editor's Note: This is the third in a series of PPE cost-benefit profiles that will appear in *Protection Update*; look for future profiles on eye/face, hand, respiratory and fall protection.

St. Louis Conference Will Focus on Road Worker Safety

Several hundred road construction safety professionals will convene for American Road and Transportation Builders Association's (ARTBA's) first International Conference on Roadway Work Zone Safety, May 9-12 in St. Louis. Topics to be covered include fatality causes and preventions, and innovative federal, state and association-developed programs to promote work zone safety.

Joining ISEA as conference partners are National Safety Council, *Better Roads* and *Roads & Bridges* magazines, Federal Highway Administration, International Road Federation, National Work Zone Safety Information Clearinghouse, and Texas Transportation Institute. For more information, contact ARTBA's Ashley Stow, 202-289-4434 or astow@artba.org, or visit

<http://wzsafety.tamu.edu>. ●



SAFETY EQUIPMENT Works for You

Protection Update will regularly carry stories about how safety equipment has prevented construction worker injuries or contributed to construction companies' bottom lines.

Turtle Club Recognizes Hardhat-Protected Workers

Most news is made when things go wrong. But *Protection Update* believes that road construction workers should get recognition for doing things right. That is where "The Turtle Club" comes in.



Membership in the "The Turtle Club" is open to any workers who have escaped serious injury by wearing any brand of hard-

hat. Workers may be nominated for membership by their supervisors or company safety directors. Each new member receives a hardhat; a membership certificate, card and pin; and a "Turtle Club" decal. There are no dues or membership fees, and the membership lasts a lifetime.

Bullard, an ISEA member company, has sponsored "The Turtle Club" since 1950. For a membership application, write to "The Turtle Club," 1898 Safety Way, Cynthiana, KY 41031-9303, or fax: 859-234-8987, ATTN: Beverly Pierce. ●



He Never Saw It Coming

John was at work when a 35-pound bucket of nails fell from 10 feet above and hit him on the head. Fortunately, John was wearing a hardhat. John escaped with only a sprained back. Had he not been wearing the helmet, who knows what injuries he might have suffered? (Hardhat from ERB Industries, Inc., www.e-erb.com.)



'Seeing' the Invisible

When a Pennsylvania fire and rescue department arrived on the scene of an accident along an interstate highway, they found that the vehicle had left the roadway and overturned a number of times, and an injured man was lying nearby. On the way to the hospital, he regained consciousness and reported that his pregnant wife also had been in the car. Back at the accident scene, rescuers began searching a dark, wooded area using thermal imaging cameras (TICs). Within a very short time, they located the man's wife about 200 feet from the vehicle. She had wandered away, delirious with head trauma. The rescue personnel credited their TICs for detecting the woman's warm image almost immediately. The husband, wife and their new baby are doing fine now. (Thermal imaging cameras from Mine Safety Appliances Company, www.msanet.com.)



Seeing is Believing

Ha-Keem was working on a power plant project when the hose of an air-driven (100 psi) impact wrench broke free from a work area above him and whipped around wildly, slamming into his face. Ha-Keem was wearing protective eyewear, which took the brunt of the impact. While the glasses were bent – one stem being twisted about three inches above the other – his only injuries were some facial bruises and a slight headache. He took ibuprofen, and before finishing his shift donned a new pair of protective eyewear (from Mine Safety Appliances Company).

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