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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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INTERNATIONAL
SAFETY EQUIPMENT
ASSOCIATION

Lack of Enforcement is Main Barrier to PPE Use

Road Leaders Surveyed on Safety Equipment Use, Awareness

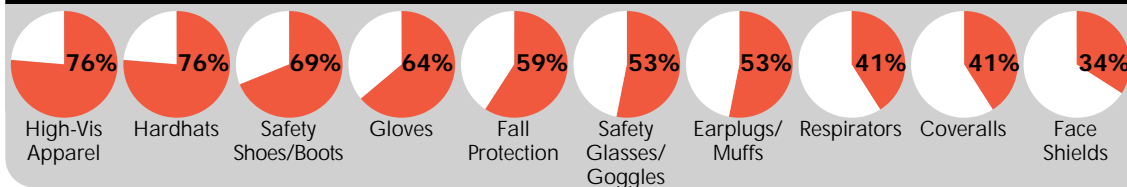
The main reason road construction workers do not wear personal protective equipment (PPE) when needed is because their employers do not require or enforce its use, according to a new survey of road construction safety leaders. Strategic Marketing Associates (SMA), an Ohio-based research firm that specializes in the construction industry, conducted the survey for ISEA.

The survey measured road construction leaders' perceptions about awareness and use of PPE, including their viewpoints on barriers that prevent workers from using it, and the effectiveness and importance of various safety measures, including PPE.

In all cases except earplugs/muffs and coveralls, the industry leaders cited "employers don't require/enforce usage" as the number one barrier. Other barriers the respondents evaluated were "lack of style/comfort," "hampers job performance," "equipment not available or not provided," "expense of equipment to employees," "laborers aren't informed on importance of equipment," "apathetic," and "inattentive."

For earplugs/muffs, "laborers aren't informed..." was the top barrier, while for coveralls, "lack of style/comfort" was cited most frequently. Both of those barriers and "hampers job performance" were cited fre-

Percentages of Road Construction Workers Who Regularly Use PPE When Needed*



SMA conducted the survey by a combination of faxed-back questionnaires and telephone interviews. Two hundred fifteen safety leaders took part, including 111 from the private sector (construction companies, unions, insurance underwriters, associations) and 104 from the public sector (federal and state highway departments and other regulators, elected officials and staff). All of the respondents make or influence decisions affecting road worker safety.

The key finding concerning lack of employer enforcement came in response to a question that asked respondents to consider eight different potential barriers that may exist between hazard-exposed road workers and their usage of 10 different types of PPE — safety vests, hardhats, fall protection, safety shoes/boots, earplugs/muffs, safety glasses/goggles, gloves, respiratory protection, coveralls and face shields.

quently for other types of PPE, as well. Seen as less significant barriers were "expense of equipment to employees," "apathetic" and "inattentive."

Asked about usage levels for various types of PPE when needed, the safety leaders said that high-visibility apparel (safety vests) and hardhats are worn regularly in situations where they are needed about 75 percent of the time — the highest usage rates they assigned among the 10 types of PPE evaluated. By contrast, they believe that earplugs/muffs are worn only about half the time when needed, and that usage rates for respiratory protection, protective coveralls and face shields fall well below that level — in the 30 to 40 percent range.

Asked about the importance of various types of PPE in minimizing accident or injury, the respondents said that safety vests, hardhats, fall protection, safety shoes, earplugs/

*Road Construction Market Investigation for ISEA by Strategic Marketing Associates, Inc., Stow, OH (April 2001)

WHAT'S NEW IN ROAD CONSTRUCTION SAFETY



NIOSH Publishes Work Zone Guide

Building Safer Highway Work Zones: Measures to Prevent Worker Injuries from Vehicles and Equipment is an informative new guide from the National Institute for Occupational Safety and Health (NIOSH).

The 70-page volume summarizes the public health implications of work zone hazards; examines worker fatalities and injuries in highway work zones; recommends 15 different injury-prevention measures in the areas of work zone layout, traffic control devices, worker protection, illumination, etc.;

and it details the causes of 29 highway construction fatalities. It calls for all workers on foot to be outfitted with high-visibility apparel and summarizes the ANSI/ISEA 107-1999 (*American National Standard for High-Visibility Safety Apparel*).

The guide – DHHS (NIOSH) PUBLICATION No. 2001-128 – is available from Publications Dissemination, EID, NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226-1998, 800-35-NIOSH, pubstaf@cdc.gov, or may be found at www.cdc.gov/niosh/2001128.html. ●



American Road and Transportation Builders Association (ARTBA) and National Safety Council (NSC) have teamed up to develop a new program, "OSHA 10-Hour Training Exclusively for the Roadway Construction Industry." The turnkey program, introduced in May at the International Conference on Roadway Work Zone Safety, includes a detailed facilitator manual, participant guide, Power Point slides and suggested activities for each module. For more information, contact Eric Rothman at ARTBA, 202-289-4434, or NSC at 800-621-7619.

PROTECTION BRIEFS FOR ROAD CONSTRUCTORS



● A new brochure from **Services & Materials** describes the company's diverse line of *Work Zone Safety Products*. For a free copy of the six-page, full-color brochure, phone 800-428-8185 or 636-349-1193 and ask for *Work Zone Safety Products*, or visit www.servmat.com.

● **3M** has introduced a comprehensive *Guide to Safety Products for Welding, Grinding and Cutting*. This free guide reviews potential respiratory

safety problems related to metal-working jobs, and includes helpful information for addressing these issues. For more information, contact 3M OH&ESD, 800-328-1667, occsafety@mmm.com, or www.3M.com/occsafety.

● **North Safety Products Top 100 Catalog** is a new guide to the best selling products in the company's "head-to-toe line." For more information, contact **North Safety Products**, 800-430-4110, www.northsafety.com.



● The Delta No-Tangle™ WorkVest from **DBA/SALA** incorporates a high-quality no-tangle fall-protection harness with workwear that meets Class 1 and 2 high-visibility requirements of ANSI/ISEA 107-1999, according to the company. The WorkVest/harness is for use day or night when visibility counts, the company says. For more information, contact DBI/SALA, 800-328-6146, solutions@dbisala.com, www.salagroup.com.

Quieting Your Construction Site



By Scott Schneider
Laborers' Health and Safety Fund
of North America

Thousands of construction workers in the United States are hearing impaired because of their work, and thousands more are destroying their hearing because of their exposure to noise in construction. In response, the Laborers' Health and Safety Fund of North America (LHSFNA) has launched the Construction Noise Control Partnership. The partnership is committed to ending this trend of rampant hearing loss for construction workers.

The "Partnership" consists of the Laborers' International Union of North America (LIUNA), other trade unions, contractors, public health organizations, government agencies, academics and equipment manufacturers, including the International Safety Equipment Association.

Most construction workers have suffered significant hearing loss after working 15-20 years in the trade. The National Institute for Occupational Safety and Health has found that a 25-year-old construction worker typically has the hearing of a 55 year old who has not been exposed to excessive workplace noise.

LACK OF ENFORCEMENT

from page 1

muffs and safety glasses/goggles are "highly important." They consider gloves, respirators, protective coveralls and face shields to be "moderately important." "The respondents did not think that any type of PPE is of low importance," said SMA President Jim McKeen.

Considering the effectiveness of six different safety measures to minimize construction zone accidents and injuries, SMA reported that the respondents believe all of them are "highly important," with "training and education" receiving the highest rating of all. They ranked the other measures in descending order or importance as follows: signs/lights, barriers/cones, PPE, flagger and OSHA compliance.

Noise can affect safety and communications on the jobsite. Background noise from machinery can make it hard to hear backup alarms and to relay instruction. If a worker is hearing impaired, the situation is even worse. Not hearing a "Look out below!" warning from someone above can mean the difference between life and death.

Hearing loss also hurts workers' quality of life and their families. Everyday tasks like talking on the phone, watching television and conversing with family members become sources of stress and can lead to social withdrawal.

The Construction Noise Control Partnership is developing a best practices guide explaining how to reduce jobsite noise and how to protect workers' hearing, and is taking other steps to reduce this insidious injury that affects thousands of construction workers. Our efforts hopefully will protect the next generation of construction workers from hearing loss.

If you would like more information on how you can help the Construction Noise Control Partnership, please contact me at the LHSFNA, 202-628-5465, or schneider@lhsfna.org. An informative booklet, *A Laborers' Guide to Prevent Hearing Loss in Construction*, also is available from LHSFNA. ●

Commenting on the results, ISEA President Daniel K. Shipp said, "Most road construction employers want to do the right thing by keeping their workers safe, and many already recognize the bottom-line benefits of equipping their workers properly with PPE. We hope that these findings will serve as a wake-up call on just how far we all have to go to ensure the safety of road workers, especially in terms of their PPE use. Given the enormous costs of on-the-job injuries and the virtually incalculable costs of workplace deaths, there is no good reason why every employee isn't wearing PPE when he or she needs it."

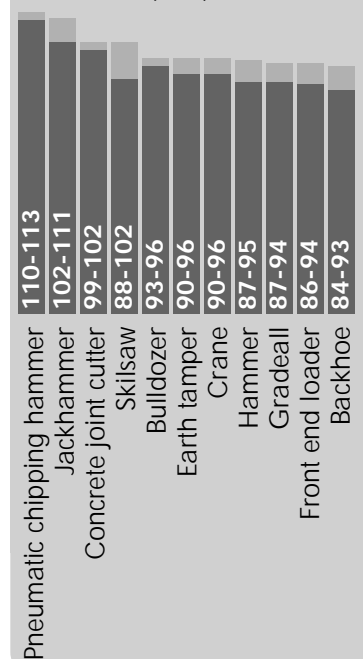
For additional information on the survey, contact ISEA's Joe Walker, 703-525-1695 or jwalker@safetysystem.org. ●

ABOUT THE AUTHOR

Scott Schneider is director of occupational safety and health of the Laborers' Health and Safety Fund of North America (LHSFNA), a Washington, DC-based joint labor-management organization affiliated with the Laborer's International Union of North America (LIUNA). A vast majority of LIUNA's 800,000 members work in the construction industry.

Common Noise Levels in Construction

in decibels (dBA)



Adapted from *A Laborers' Guide to Prevent Hearing Loss in Construction*

ABOUT THE AUTHOR
 Gretchen B. Manning is portable instrument product group manager for Mine Safety Appliances Co. (MSA), Pittsburgh, PA. ISEA member MSA makes a variety of high-technology instruments for protecting workers in construction and other workplaces where gas or explosive hazards may exist. Ms. Manning may be contacted by calling 800-MSA-2222 or gretchen.manning@msanet.com.

Gas Detectors

Protecting Against the Invisible Threat

By Gretchen B. Manning
 Mine Safety Appliances Co.

Your road construction crew is preparing for today's job. You have the necessary tools and machinery for the various tasks that you will face. You've got fall-protection gear, hardhats and safety glasses to guard against physical hazards, respirators to protect against dust and asphalt fumes, reflective vests and an effective

The Invisible Threat

There is a definite need for reliable gas detection equipment on road construction work sites that involve work in confined spaces, underground construction, excavation, working near emissions, or use of explosives.

Exposure to combustible or toxic levels of hazardous gases, as well as oxygen-deficient atmospheres (containing less than 19.5% oxygen by volume), can cause immediate death or injury to an unprotected worker and are

responsible for injuries and fatalities in the road construction industry each year.

Combustible gases such as methane, pentane and hydrogen are a hazard to workers when they are present in sufficient quantities to pose the threat of fire or explosion. With some gases, this can happen even at low concentrations.

Toxic levels of commonly encountered gases such as hydrogen sulfide, carbon monoxide, nitric oxide and nitrogen dioxide can harm workers even in low doses, and can cause both short-term and long-term damage. Low doses can cause headaches, dizziness, slowing down of the central nervous system and even death. Chronic exposure to low concentrations can damage the reproductive, mental and nervous systems, and cause chronic

respiratory damage and decreased resistance to infection. Higher doses can be fatal.

Oxygen deficiency often results from oxygen-depleting gases displacing the oxygen supply in confined spaces such as sewers, underground vaults, tunnels, trenches and

Hazardous Gas Threats in Road Construction

TASK	GAS HAZARDS
Confined Space Work	
<ul style="list-style-type: none"> ● Trenching ● Sewer Repair ● Telecommunications Vaults ● Bridge & Tunnel Construction 	oxygen deficiency, carbon monoxide, hydrogen sulfide, nitric oxide, nitrogen dioxide, methane & other combustible gases
General Underground Construction	
<ul style="list-style-type: none"> ● Tunneling ● Vertical Shaft Construction 	oxygen deficiency, ammonia, carbon monoxide, carbon dioxide, hydrogen sulfide, nitric oxide, nitrogen dioxide, methane, ethane & other combustible gases
Working Near Emissions (Automobile & Diesel Vehicle/ Equipment Exhaust)	
<ul style="list-style-type: none"> ● Generator Use, Digging/ Trenching ● Paving, Surfacing & Tamping ● Elevated Highway Construction (Large Capacity Lifting Machinery) ● Earthmoving (Excavators, Scrapers, Loaders & Lorries) 	carbon monoxide, nitric oxide, nitrogen dioxide
Using Explosives	
<ul style="list-style-type: none"> ● Blasting (Creating Cuttings & Tunnels) 	nitrogen oxides (including nitric oxide & nitrogen dioxide)
Excavation	
<ul style="list-style-type: none"> ● Near Landfills, Gas Pipelines & Underground Fuel Storage Tanks ● Sewer & Utility Installation 	hydrogen sulfide, sulfur dioxide, methane & other combustible gases

traffic control program. These are all important safety measures in the fight to protect the health and even lives of you and your fellow workers—but they are not enough! They CANNOT warn of the presence of hazardous gases.



pits. Effects of oxygen deficiency range from impaired thinking and coordination to rapid fatigue, unconsciousness and death.

A person cannot rely on human sensing abilities to tell when hazardous gases are present, as they are often odorless, making smell an unreliable indicator. And since non-fatal toxic gas effects can be delayed, a worker may not realize that he or she has been exposed until much later. Unaware of the danger, others may continue to work in the area, also becoming exposed. Clearly there is a need for reliable gas detection equipment whenever there is a chance that any of these hazards might be present.

Gas Detectors—An Essential Tool

Single-gas and multi-gas detectors are continuous reading instruments that can be used easily by workers to monitor gas levels, alerting them before they reach dangerous

levels. Portable single-gas detectors are available for detecting oxygen, carbon monoxide, hydrogen sulfide, sulfur dioxide, nitric oxide, nitrogen dioxide and other gases. Portable multi-gas detectors usually detect four or five gases. Sensors are normally available for the gases listed above, but can also include others such as ammonia, chlorine and chlorine dioxide.

Selecting the right gas detector is a simple two-step process, as follows:

- Be aware of the dangers of hazardous levels of toxic and combustible gases and oxygen deficiency, and the environments in which they commonly exist on road construction sites.
- Regularly use a gas detection device when working in an area where hazardous gas level may be present.

Your life, and the lives of others, could depend on it. ●



Letter to Editor

I wish to add an endorsement to the article ("Protecting the World of Concrete") written by (ISEA President) Daniel Shipp that appears in the March/April issue of *Protection Update*. I was very pleased to see that Mr. Shipp took the time to write about a safety concern that took place at the World of Concrete. Several safety professionals, including myself, attended this year's show and noted that many exhibitors were not using appropriate personal protective equipment when demonstrating their products. This is something that should be changed for future shows.

According to reports, 77,000 people attended this event. This means that a vast number of owners, supervisors and craft workers in the concrete construction industry were influenced by what they saw and heard. Most would agree that every effort should be made to insure those who attended not only learned about the latest equipment and materials for their industry but also how to use them safely.

Unfortunately, construction has suffered for a long time with a reputation as dangerous work. This adds to the difficulty of attracting new young workers to our industry. We all need to continue to do everything possible to promote safe work. This includes protecting workers through proper use of safety equipment and sending a clear and consistent safety message.

I would like to encourage those who organize and sponsor the World of Concrete to make a special effort to let exhibitors know how important it is to use their products safely.

Safety professionals are constantly looking for ways to eliminate pain, suffering and financial loss due to accidents. That is our job. We know, however, that the worker is the key to avoiding injury when they look out for their own safety and their co-workers. We can help if we demonstrate for them the safe way to perform their daily activities. A consistent safety message is an opportunity to reduce accidents in construction and improve the construction image.

Bruce Slattery, Safety Vice President
Baker Concrete Construction, Monroe, OH

ABOUT THE AUTHOR

Ray Morris is global sales training manager for Ansell Occupational Healthcare, Coshocton, OH, manufacturer of HyFlex® gloves. Ansell is an ISEA member company. For more information, contact Ansell Customer Service, 800-800-0444, or log onto ansell-pro.com.



868 Traffic Cones arrayed at the base of the Washington Monument for the National Work Zone Awareness Week kickoff memorialized workers and motorists who lost their lives in work zones during the latest year of record. ISEA President Dan Shipp spoke at the April event, which was held to remind motorists about the importance of driving safely through road construction work zones.

Constructing a Hand Safety Plan for Your Work Site

By Ray Morris
Ansell Occupational Healthcare

Think about all the requirements you're confronted with when building a proper safety program at your construction site. Some of them are obvious: hardhats, steel-toed work boots, and clothing that protects from worksite conditions while also increasing workers' visibility. But there is one safety requirement that is often overlooked: proper hand protection.

More than half of all recordable hand/finger injuries results in one or more days of lost time. According to the U.S. Bureau of Labor Statistics (BLS), seven out of 10 workers were not wearing gloves when their accidents occurred. BLS also found that in most cases workers were not wearing gloves because the gloves they were given were the wrong choice for the task at hand.

Look at it in monetary terms. If you lose a worker because of a hand injury, how much is it costing you? One company estimated that a single bandage cost more than \$80.

In fact, the average cost of a non-recordable hand/finger injury is between \$100 and \$500. Additionally, there are hidden or indirect costs associated with hand/finger injuries such as hours lost to first aid, loss of productivity, hours lost assisting the injured worker, hours lost handling inquiries, administrative costs, and cost of lost hours for investigation of the injury.

These are costs that could be saved if proper consideration is given to providing hand protection that is comfortable and doesn't hinder worker productivity. Hand protection that workers want to wear is hand protection that will save you money and improve your bottom line.

If workers rely on bulky, poor-fitting cotton jersey gloves, they are not getting the safety, productivity, and comfort they need. Often, when cotton gloves are their only choice, workers will opt to wear no gloves at all — which obviously presents the worst and most injury-prone situation of all. So, whether they're using hammers and saws or operating forklifts or earth-moving equipment, having comfortable hand protection will make workers happier and more productive.

ISEA member companies provide hand protection that combines fit, dexterity and comfort to improve worker productivity, as well as reduce the potential for injury. Consult *ISEA's Safety & Personal Protective Equipment Buyer's Guide* online at www.safetysystem.com for more information. ●

OSHA Special Emphasis Program Finds Room for Improvement

The first year of the U.S. Occupational Safety and Health Administration's (OSHA's) stepped up inspection program at road construction sites in Illinois, Ohio and Wisconsin (OSHA Region 5) turned up 557 violations resulting in fines totaling nearly \$1 million.

Altogether, OSHA made 309 inspections during the Local Emphasis Program's (LEP's)

first year, which concluded Sept. 30, 2000. The Region V LEP's purpose is to reduce fatalities and serious injuries that are occurring at road construction work sites, and to serve as a model for a national program of increased emphasis at road construction sites. OSHA has decided to continue the LEP for a second year in Region V.

Two of the top 10 violations directly involved lack of personal protective equipment, namely 13 instances where workers were not protected by hardhats and nine instances where "flagmen" were not wearing high-visibility garments while flagging. The most frequently cited situation (34 instances) was lack of traffic signs at points of hazard. ●

BOTTOM-LINE BENEFIT

Hand Protection

Bottom-line Benefit in Road Construction

Road constructors pay out \$48 million more for hand injuries each year than it would cost them to equip all of their hazard-exposed workers with protective gloves. That is the bottom line for road 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 International Safety Equipment Association (ISEA).

How so? Start with 574,000 hazard-exposed road construction workers in the private sector (ARTBA). Apply a 64% usage rate for protective gloves when needed among road construction workers (ISEA 2001 survey), meaning that 36% (206,640 workers) are not using protective gloves when they need them. Multiply that number of workers by the cost each year to equip each of those workers with 10 pairs of gloves at \$4 a pair (\$40), yielding a total cost of \$8.3 million to equip with gloves all remaining road construction workers.

Now multiply the total number of annual lost-time hand injuries in road construction, which is about 2,020 (based on conservative extrapolation from BLS data) by the \$28,000

cost per on-the-job injury (NSC), yielding a total cost for hand injuries in road construction of \$56.6 million. Subtract the \$8.3 million cost of equipping all unprotected workers from that figure to derive the \$48.3 million more that road construction companies pay out each year for hand injuries.

"Wearing abrasion- and laceration-resistant gloves will not protect against every potential hand 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 to cover the costs of hand injuries each year than they would pay to equip their workers properly and make sure they are wearing their gloves when they need them." For details on the statistical basis of this cost-benefit profile, contact ISEA's Joe Walker, 703-525-1695 or jwalker@safetyequipment.org. ●



PHOTO MONTAGE BY SAM FERRO

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

Work Zone Safety Conference Recognizes Public Service Campaigns

Nearly 200 road construction safety professionals convened for the American Road and Transportation Builders Association's (ARTBA's) first-ever International Conference on Roadway Work Zone Safety in St. Louis.

During the May conference, ARTBA and the National Safety Council recognized public and private transportation interests and news media outlets for their commitment to safety as demonstrated through public service campaigns. First-place public service awards went to Georgia Department of Transportation; Transportation Student Association of Ames, IA; Tennessee Road Builders Association; Laborers' International Union Local 169, Reno, NV; Engineering News-Record magazine; and WWBT-TV (NBC-12), Richmond, VA, working with the Virginia Road & Transportation Builders Association.

ISEA's Road Construction Safety Equipment Users Council met during the conference, and ISEA exhibited and participated in four presentations.

SAFETY EQUIPMENT

Works for You

ATSSA Scholarship Assists Families of Work Zone Victims

The American Traffic Safety Services Association (ATSSA) has launched a new "Roadway Worker Memorial Scholarship program" for the children of roadway workers disabled or killed in work zone accidents.

Scholarships will be awarded through a competitive process and have a value of up to \$2,000 each. Those interested should visit the "Foundation" link at www.atssa.com. ATSSA, a member organization of the ISEA Construction Safety Equipment Users Council, is the trade group for companies that manufacture and install roadway safety features, including signs, stripes, guardrails and lighting.



Hats Off to a Retro-reflective Cap

Walter was called upon to deliver fuel to an out-of-gas motorist stranded along an unlighted, busy highway at night. As he attempted to gas up the car, Walter felt the "whoosh" of traffic on his back and jumped clear. Then he remembered he had a retro-reflective ball cap in the trunk of his car. Donning the cap, he returned to his task. In Walter's words, "The still-busy traffic immediately gave me a wide berth. It was amazing. They didn't know what it was, but it was clear drivers were now aware of me and moved over." (VIS-MAT retro-reflective hat from HeadLites Corporation, www.headlitescorp.com.)



Sight for Sore Eyes

Earlier this year, a contract employee with the Tennessee Valley Authority (TVA) was testing a high-pressure heater that had been repaired using brass plugs. As the pressure inside the heater built up, one of the plugs blew and with tremendous velocity struck the center of the left lens of the worker's Astrospec 3000 safety glasses. The TVA had never had a repair plug blow as this one did. While the employee sustained injuries to the orbital area of the eye and to the nose from the incredibly dangerous impact, his eye was saved by the safety glasses (from Uvex Safety, a Division of Bacou USA Safety, Inc., www.uvex.com).

Charles was using a die grinder with a hard rubber wheel to smooth a piece of metal. Unexpectedly, the wheel broke apart, hurling a large chunk rubber at the surprised employee. The projectile crashed into Charlie's face and bounced off his prescription safety glasses. The force of the impact knocked the glasses askew, but the frame remained intact and the lens had only minor scratches. After he saw an eye doctor, Charlie returned to finish the job. He did sport a black eye for several weeks, but his vision was saved. (AOSafety prescription safety glasses from Aearo Company, www.aearo.com.)

Only two days after purchasing a pair of safety glasses because he liked the "design and mirror-blue" lenses, Bob was wearing the specs April 9 as he pulled a nail attached to a very taut string line. The nail shot straight toward his face, striking the glasses' left lens. "Thank God I had your safety glasses on because I would have lost my left eye," Bob reported on his Safety Works glasses (from Mine Safety Appliances Company, www.msanet.com).

ISEA

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Protection Update now is also available on the National Work Zone Safety Information Clearinghouse website at wzsafety.tamu.edu