Why Are Young Workers at an Increased Risk for Injury?

It is often said that young workers are prone to taking risks, on the job and otherwise, out of a sense of feeling invincible. But new research suggests that actually might not be the case, according to a recent study. Researchers have identified several workplace and worker characteristics that can lead to injuries, especially among young workers. Workplace characteristics include:

- **Insufficient training:** Many young workers do not receive adequate orientation and training for their jobs. One study found that just 20 percent of young workers receive any safety training within their first year on the job.

- **Insufficient resources:** Many young workers are employed by smaller businesses that have limited resources for safety equipment and limited occupational health and safety knowledge.

- **Low social cohesion:** Having more part-time and temporary employees in a workplace may lead to a weak safety culture and to poorer safety education and training. These things, in turn, reduce workers’ ability to gain site-specific knowledge and skills, creating an environment where they are “new on the job” for longer.

- **The social and economic context of a geographic region:** Areas with a greater proportion of small workplaces—most notably, affluent rural areas—are associated with lower numbers of worker injuries.

- **Perceived work overload:** Researchers found that the risk of injury on the job steadily increases as workers become more overwhelmed. When workers feel pressured to do their jobs more quickly, they spend less time thinking about safety.

Here are some worker characteristics that can elevate one’s risk for injury:

- **A “part of the job” mentality:** Some young workers consider minor injuries to be part of the job.

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Finally, here are a couple of myths about young workers:

- **Perception of risk taking:** Popular views tend to attribute young worker injuries to risky behavior and age-related feelings of invulnerability. But WorkSafeBC says recent studies suggest that adolescents’ tendency to engage in risky behavior doesn’t seem to be due to irrationality, delusions of invulnerability, or ignorance.

- **Age, gender and personality:** Researchers have found that personal factors such as age, gender and personality—which are normally blamed for risk-taking behavior—are not necessarily associated with higher injury rates. In fact, job and workplace factors, such as working with more hazards, perceived work overload, lack of training, and insufficient supervision, are more directly linked to incidents and injuries.

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**NEWS YOU CAN USE**

**Science Fiction It’s Not: Wearable Exoskeletons to Reduce Physical Loads Now Available**

Stepping into a robotic-like suit that provides powered assist and increased strength may sound like something out of a superhero movie, but the technology now exists. The National Institute for Occupational Safety and Health (NIOSH) says wearable exoskeleton devices “are now a reality and the market for their applications in the workplace is projected to increase significantly in the next five years.”

There are two types of wearable exoskeletons—active and passive. An active exoskeleton uses electronic servo-motors and powered actuators to allow a worker to handle external loads with less effort. A passive system requires no external power and uses springs, elastic cords and other elements to store energy from human motion and use it as required to support a worker’s posture or motion.

“From the standpoint of workplace health and safety, wearable exoskeleton devices may be beneficial in reducing musculoskeletal loads that are not otherwise abated by engineering process change,” says NIOSH. “Lifting and handling of heavy materials and supporting heavy tools are contributors to fatigue and musculoskeletal disorders (MSDs), which are known to account for approximately 30 percent of lost-time injuries and illnesses.”

The preferred approach to reducing workers’ exposure to musculoskeletal injury risk factors has been to redesign work through engineering controls or process change. Examples include reducing the weights of tools and materials, or changing the layout of the work area to avoid body postures and manual forces that put workers at risk for MSDs. Another approach is to provide personal protective equipment such as back belts or lifting belts, but NIOSH says its review of studies on back belts in the 1990s found insufficient evidence of their ability to prevent back injury to recommend them as effective PPE.

NIOSH says the market for industrial use of wearable exoskeletons is projected to increase hugely, from $2.9 million in 2016 to $1.12 billion in 2021.

“Use in the shipbuilding industry, now under way, represents a high market percentage initially, but greater increases in market share are projected in the construction, warehousing and manufacturing industries,” says NIOSH.

While NIOSH has not reviewed evidence relating to wearable exoskeletons preventing workplace musculoskeletal injuries and illnesses, it says the majority of 40 studies undertaken to date reported decreased back muscle activity and compressive forces in the lower spine with the use of these suits.

The US Department of Defense is also exploring how the use of exoskeleton technologies might augment soldiers’ physical capabilities in military applications.
**POLICIES AND PRACTICES**

**Electrical Checklist: Preventing Electrical Hazards**

Below is an easy to use checklist. By selecting “yes,” “no” or “not sure” you will be able to see at a glance legislative issues you may need to address for electrical hazards. State the action that is required and your target date for completion; then determine if you have met your target or not.

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
<th>Action Required</th>
<th>Target Date</th>
<th>COMPLETE Y/N</th>
</tr>
</thead>
</table>

### MAINTENANCE

- **Do only knowledgeable staff install or repair electrical equipment? (E.g., properly licensed)?**
- **Is there equipment that has the grounding pin removed which results in destroying the grounding path?**
- **Do thorough inspections take place: look for grounding pin on all attached plugs?**
- **Do workers always assume a circuit is live until it is proved dead?**
- **Do employees report any electrical defects or problems immediately? (E.g., short circuit)?**
- **Are wall plug plates covered and fitted properly?**
- **Is preventive maintenance completed on electrical equipment? (E.g., moisture, dirt, loose connections, short circuit and poor insulation could result in build up of heat and fire)?**
- **Are appliances unplugged before working on them and a lock-out device attached?**
- **Are power tools unplugged before changing blades?**
- **Are all power tools properly grounded using a three prong plug?**
- **Is water collecting on the floor that could come in contact with electrical equipment or extension cords?**
- **Is there frequent tripping of circuit breakers or frequent blowing of fuses?**
- **Are unusual electrical problems reported and corrected? (E.g., shocks, flickering lights, buzzing sounds, smell of burning, arcs, dim lights, sparks, sizzling sound, presence of soot, warm electrical equipment and receptacle plates, etc.?)**
- **Are tools used to repair electrical installations insulated: screwdrivers, pliers, wrenches, etc.?**

(Source: Health & Safety Ontario)
**Recent OSHA Cases & Fines**

### REGION 2

**Residential Construction Contractor Cited** for fall hazards and other issues. OSHA says separate inspections of worksites in four New Jersey communities resulted in 19 repeat and eight serious violations being cited, carrying proposed penalties of $198,550. Inspectors found that Berlin Builders failed to provide fall protection for workers exposed to fall hazards as high as 29 feet; train employees on fall protection; inspect job sites for hazards; train employees on proper ladder use; provide PPE; provide fall protection on an aerial lift; and ensure that damaged electrical cords were not being used. [Berlin Builders, Cinnaminson, NJ, March 10, 2016].

**Contractor Cited Following Hangar Collapse** during demolition at Newark Liberty International Airport. OSHA conducted an inspection and determined that the company had deviated from an approved demolition plan by cutting through several I-beams while workers were working inside the hangar. Four workers received injuries that were not life threatening. OSHA cited one willful violation for overstressing structural members as a result of improper cuts being made during demolition. The company was issued $49,000 in proposed fines. [Catanza & Sons Enterprise, doing business as CATCO Demolition Services, Montville, NJ, March 1, 2016].

### REGION 3

**Hotel Cited for Numerous Violations** following complaint of unsafe conditions. OSHA cited 12 serious and 14 other-than-serious violations carrying $76,700 in proposed penalties. OSHA inspectors found inadequate PPE being supplied for employees working with chemical products; deficiencies with documentation of the OSHA 300 log; failure to report a worker’s hospitalization to OSHA within 24 hours; employees cleaning with compressed air in excess of 30 pounds per square inch; electrical hazards; energy control program deficiencies; fall hazards as high as four feet; and deficiencies in the hotel’s bloodborne pathogen and hazard communication programs. [Wardman Hotel LLC, doing business as Marriott Wardman Park Hotel, Washington, DC, March 9, 2016].

**Company Cited for Willfully Exposing Workers to Machine Hazards** issued $60,200 in proposed penalties. OSHA initiated an inspection on Oct. 7, 2015 in response to a complaint alleging hazards at the worksite. Inspectors found a lack of machine guarding throughout the facility and cited the company for those hazards. Furthermore, company owners admitted to not installing guards on newer metal presses and removing guards from older presses. The business was also cited for several serious violations, including exposing workers to burn hazards and smoke inhalation due to the improper cleaning of exhaust stacks; fall hazards due to guardrails; a lack of suitable eye protection; allowing workers to use damaged electrical equipment; and failure to develop, implement, and/or maintain a written hazard communication program. [P/M National Inc., St. Marys, PA, March 2, 2016].

### REGION 4

**Florida Walmart Supercenter Cited** for violating corporate-wide safety agreement. OSHA says Walmart continues to endanger the safety and health of its employees despite a corporate-wide settlement agreement it entered into in 2013. After inspecting a Walmart Supercenter on Mobile Highway in Pensacola, FL, OSHA cited three repeated violations for not providing Hepatitis B vaccinations to workers who were designated to clean up blood spills; not ensuring that workers understood the symptoms and control measures for Hepatitis B; and failing to maintain unobstructed access to a disconnect box and panel for the baler and trash compactor. OSHA cited the company for the same violations in 2013 at a New York location. OSHA also cited Walmart for serious violations that included failure to provide annual training on the dangers of bloodborne pathogens to workers who are designated to clean up blood spills; failure to provide employees with sufficient working space to avoid contact with live electrical wires; and failure to protect workers from exposure to shock and burn hazards. The company was issued $118,800 in proposed fines. [Walmart, Bentonville, AR, March 16, 2016].

**Louisiana Building Contractor Cited** after man dies in collapse of a concrete formwork in Kiln, MS. On Sept. 8, 2015, as workers poured concrete above, Gary Berthelot, 54, and three construction workers were placing additional supports beneath a concrete form when it suddenly collapsed. Berthelot suffered fatal injuries as a result of being trapped under falling concrete and other debris. OSHA cited Berthelot Design Systems and subcontractor Great Southern Building Systems LLC, doing business as Bayou Steel Fabricators Inc., for safety violations relating to the collapse. However, the citations and penalties against Berthelot were waived, as Gary Berthelot was the company’s only employee. Great Southern was cited for one willful violation of exposing workers to struck-by hazards, because the wooden formwork could not handle the concrete load. OSHA also cited two serious violations for failure to install adequate formwork to support the concrete floor as it was being poured and for not having engineering plans for the concrete floor on site. OSHA is proposing a total of $79,800 in fines for these violations. [Great Southern Building Systems LLC, Pearl River, LA, March 8, 2016].

**Construction Company Cited** for fall hazards. OSHA is proposing $92,400 in penalties for two repeated violations of failure to provide fall protection for employees working at heights of up to nine feet. OSHA says it is extremely disturbing that in spite of a dozen inspections and one worker’s death within the past five years, the company continues to violate OSHA’s fall protection requirements. [Pilgrim’s Pride Corp., Russellville, AL, March 7, 2016].

**Metal Recycler Cited** for recurring hazards and issued $77,000 in proposed fines. OSHA opened an investigation after learning that a 53-year-old machine operator had suffered a partial finger amputation as he attempted to reassemble a chicken-part separating machine. It unexpectedly started up during the task. OSHA cited one repeated violation regarding failure to develop, document and train workers on the specific procedures to prevent machinery from starting up during maintenance and servicing. Also cited was one serious violation for improper splicing of electrical cords. [Pilgrim’s Pride Corp., Russellville, AL, March 10, 2016].

**Window Company Cited After Young Worker Dies** in Wisconsin. OSHA says a 20-year-old window washer whose safety lines were not properly tied off fell nearly 60 feet to his death. OSHA inspectors found that the rooftop rigger being used by the worker was not tied back to a separate anchor point and counterweights were not utilized prior to him going over the edge to clean a set of windows at a seniors’ living facility. Violations cited include failure to use fall protection properly and train workers in fall protection systems used during drop work. OSHA is proposing $69,800 in penalties for one willful and eight serious violations. [Serwas Window Cleaning Services LLC, Oskosh, WI, March 10, 2016].

### REGION 5

**Severe Hand Injury Leads to Proposed $69,000 Fine** for Ohio packaging company. An employee using an air hose to clean scrap away from a press came into contact with a powered conveyor and suffered a left hand de-gloving injury, in which the skin is torn away from underlying tissue. OSHA cited the company for two repeated and three serious violations, which included failure to train employees in electrical and machine safety; exposing workers to operating machine parts during service and maintenance, because locking devices were not used; and failure to provide electrical PPE. [Safe Way Packaging Inc., New Bremen, OH, March 8, 2016].
Plug into PPE for Electrical Work

WHAT’S AT STAKE?
On average more than 150 workers in North America are killed every year from electric shock, burns, and other effects caused by dangerous exposure to electricity. Many of these deaths could have been prevented by wearing the right personal protective equipment (PPE).

WHAT’S THE DANGER?
Contact with live electrical wires or energized equipment can cause:
- Shock or electrocution
- Burns
- Falls

Other electrical hazards include the potential for violent and deadly arc flashes, fires and explosions.

HOW TO PROTECT YOURSELF
Common PPE for work on and around electrical equipment includes:
- Nonconductive head and face protection – either a hardhat or full face helmet depending on the exposure risk. This will protect against accidental bumps and contact with energized parts and energized equipment over or around your head and face. All three classes of hardhats protect the head against injury from moving or fixed objects, but only Class E and Class G hardhats also protect against electrical hazards. If your task involves the potential risk for electrocution through head contact with electrical conductors, check the label inside your hardhat.
  - Class C (conductive) hardhats provide no electrical protection.
  - Class E (electrical) provides the greatest protection against electrocution, as it is rated to protect against exposure to high-voltage electrical conductors, to a maximum of 20,000 volts.
- Eye protection to protect your eyes from flying and falling sparks and debris.
- Insulated rubber gloves and leather glove protectors offer some protection from shock if you accidentally touch a live part or wire.
- Hearing protection is necessary in areas where an arc blast or other electrical related explosion could occur. Arc blasts are powerful enough to cause permanent hearing loss if no hearing protection is worn.
- Hearing protection is necessary in areas where an arc blast or other electrical related explosion could occur. Arc blasts are powerful enough to cause permanent hearing loss if no hearing protection is worn.
- Finally, you must use arc rated clothing when working inside arc flash and approach boundaries. This will protect you from the extreme heat of any arc flash that may occur. PPE used for electrical work is rated by the arc rating of the fabric. The higher the rating, the more protection it offers. Check the labels of PPE for the ratings.

FINAL WORD
Wearing the correct type of PPE can protect you against the hazards of working with or around electricity. But remember, always inspect your PPE for damage before you put it on and always wear required PPE. PPE can’t protect you if it’s not in good condition and you’re not wearing it!

Meeting material to go: Safety meeting materials such as presentation tips, PowerPoint presentations, quiz answers and more are downloadable at: www.SafetySmart.com

TEST YOUR KNOWLEDGE

1. PPE can protect against which of these electrical hazards?
   a. Burns
   b. Electrical rash
   c. Shock
   d. Both A and C

2. Which type of PPE will protect your eyes against flying debris and sparks?
   a. Safety glasses
   b. Reading glasses
   c. Beer goggles
   d. Sunglasses

3. Always look for the arc rating on the labels of arc rated clothing.
   □ True □ False

4. Electricity isn’t loud so you don’t need hearing protection when doing electrical work.
   □ True □ False

What Would You Do?
It’s nearing the end of your shift and it’s been a long day. You have one more task to finish on some wiring you’ve been working on. You realize your insulated rubber gloves have a small tear in them. It would take you twice as long to go get a new pair of gloves then it would to quickly finish up this last task. What would you do?

Keeping Young Workers Safe and Healthy

WHAT’S AT STAKE?
The injury rate for young workers—those under age 25—is almost twice as high than for workers over 25 and most of these injuries occur within their first 12 months of employment.

WHAT’S THE DANGER?
On average, approximately 500 workers younger than 24 years of age die from work-related injuries every year, and more than 800,000 are treated for nonfatal injuries in hospital emergency departments each year. While their injuries and illnesses might be similar, young workers face a different set of risk factors than older, more experienced workers. These risk factors include:

- A desire to do a good job and prove themselves, which can lead to doing unsafe things.
- Lack of on-the-job experience and training, including an understanding of risks associated with each job.
- Not being aware of their workplace safety rights and responsibilities and what jobs or tasks are illegal for them to perform.
- Hesitancy among many young workers to speak up about safety concerns.
- The feeling of invincibility which many young workers and young people in general have makes them more apt to take risks in and out of work.
- A still-developing sense of cause and effect makes it harder to grasp how an injury today could disable and impact them for life.
- A lack of hazard and risk awareness and the fact that they could be killed at work.

HOW TO PROTECT YOURSELF
- Educate yourself on your workplace safety rights and responsibilities and employment laws in your state or province. A quick Internet search can provide a ton of information. You have a legal right to a safe work environment!
- During the interview process, ask specific questions about safety training and the company’s safety program. Do they provide training specific to your job? Do they have a safety program?
- Be confident that you can do a good job without taking risks and doing things unsafely.
- If something feels or looks unsafe, speak to your supervisor, the safety manager or anyone else who will listen.
- Ask questions if you’re unsure of the right or safe way to do something.
- Attend training sessions and always wear your required personal protective equipment (PPE)!
- Stay in your designated work area. Often, there are hazards outside of your area that you are either not aware of, or not trained to deal with.
- Pay attention to warning signs and know where emergency equipment is located and how to use it.

FINAL WORD
If you think you’re being asked to do unsafe work or feel unsafe at work in general, talk to your supervisor. If you still have concerns, talk to your parents or someone else you trust, about continuing. Remember, no job is worth dying for!

Meeting material to go: Safety meeting materials such as presentation tips, PowerPoint presentations, quiz answers and more are downloadable at: www.SafetySmart.com

TEST YOUR KNOWLEDGE

1. Younger workers have the exact same risk factors as older, more experienced workers.
   - True  - False

2. The injury rate for young workers under age 25 is about two times higher than for workers 25 years and older.
   - True  - False

3. Most injuries to young workers occur within their first 18 months of employment.
   - True  - False

4. You have a right to a safe work environment.
   - True  - False

What Would You Do?
You’ve been assigned to work with a worker twice your age who has years of experience. You’ve repeatedly seen her take shortcuts and perform certain tasks in ways that go against the safety training you received. Her behavior makes you nervous for your safety and hers. How would you deal with this problem?

Quiz Answers: 1. False, 2. True, 3. False, 4. True
FOCUS ON: ELECTRICAL PPE
PPE Helps Prevent Shocking Outcomes

Three milliamperes of electrical current passing through the body doesn’t sound like much, but it easily can cause injuries and fatalities. For example, a worker receiving a small electrical shock while standing on a ladder can lose his or her balance and fall, with potentially fatal consequences.

Workers do not even need to directly touch objects such as exposed wires in order to suffer serious injuries or worse. That’s because electricity is capable of arcing through the air from one conductor to another. A worker caught in an arc flash event can be exposed to temperatures as high as 19,427 degrees C (35,000 degrees F).

Dropping a tool is a common cause of an arc flash. Other causes include dust or corrosion on a conductor, equipment failure due to age, substandard components or improper installation, and sparks caused by breaks in insulation.

The Workplace Safety Awareness Council (WPSAC.org), a non-profit association based in Fort Meade, FL, notes that there are three common root causes for workers being involved in electrical incidents, including:

- Working on unsafe equipment or installations,
- Working in an unsafe environment, such as in wet conditions or one where flammable vapors are present, and
- Unsafe work practices.

Before working on electrical equipment, it must first be de-energized and locked out by trained and qualified employees. In cases where it is not possible to de-energize electrical equipment, no one should be allowed near it without appropriate training.

Three means of protecting workers from electrical hazards are engineering controls, such as putting physical barriers around energy sources; administrative controls, such as giving electrical safety training to workers; and providing personal protective equipment (PPE) and ensuring that workers use it.

PPE designed to protect against electrical hazards includes non-conductive head protection; eye and face protection; flame-resistant clothing, including pants, shirts, coveralls, jackets, parkas and full flash suits; safety shoes that provide protection against electrical shock; and insulating gloves.

Flame-resistant (FR) clothing must be inspected for wear and damage before each use. If any rips or tears are found, FR clothing is not safe to use because it will not provide adequate protection. It either needs to be repaired according to the manufacturer’s instructions, or replaced. FR clothing must not be used beyond the manufacturer’s recommended replacement date.

Here are some additional guidelines for caring for FR clothing:

- Always wash it separately from other clothing.
- Wash at a low temperature, not to exceed 120 degrees F (49 degrees C) and tumble dry on the lowest setting.
- Never use fabric softeners, starches or bleaches when washing these garments.

Leather protector gloves should always be worn over rubber insulating gloves to protect the hands against cuts, abrasion and punctures. Proper care of leather protectors is essential to user safety. Inspect them for metal particles, imbedded wire, abrasive materials or substances which could damage the rubber gloves underneath.

NEWS YOU CAN USE
United Airlines Reinstating Fired Flight Attendants

Thirteen United Airlines flight attendants who were fired over an incident involving menacing graffiti on an airplane have been reinstated in an agreement between the airline and lawyers representing the workers. The flight attendants refused to fly on a summer 2014 flight between San Francisco and Hong Kong after they saw a frightening message scrawled on the tail cone of a United Airlines Boeing 747 passenger jet. The words “bye bye” were written in six-inch letters and were accompanied by two drawn faces, one smiling and the other having a frowning and possibly devilish expression.

In order to reach the tail cone area, which is about 30 feet above ground, the person who placed the graffiti on the airplane would have required access to specialized equipment.

Maintenance inspectors examined the airplane’s auxiliary power unit—a small gas turbine engine fitted into the tail cone—and removed the graffiti, after which time the captain announced that the airplane was safe to fly. The attendants did not agree and requested that a different airplane be brought in. The flight ended up being cancelled because of crew availability issues.

After refusing to fly, the attendants were terminated. They subsequently filed a whistleblower complaint with the Occupational Safety and Health Administration (OSHA), claiming they had been unjustly fired for refusing work that they considered to be unsafe. OSHA ultimately did not hear the case because the workers reached an out of court settlement with United Airlines.

Terms of the agreement, including what, if any, compensation was offered to the fired workers, are not being made public.
PICTURE THIS
Dopes on a Slope

Working on any roof without fall protection is dangerous, but the two workers shown on this steeply pitched roof are definitely playing a high-stakes game of roof roulette. Their high-visibility jackets should make them easy to spot should they fall to the ground. (Health and Safety Executive, United Kingdom)

SEVEN STATISTICS
New and Young Workers

Young workers are defined as those being in the 15 to 24-year-old age bracket, while new workers are defined as workers in any age group who have either been on the job for six months or less, or have been transferred to different jobs in the same workplace. Here are seven statistics relating to new and young workers:

1. Workers who are new to the job are three times more likely to be injured within their first month of work than their more experienced co-workers. (Ontario Ministry of Labour)

2. In 2012 there were 375 work-related deaths involving workers ages 24 or younger across the United States. (National Institute for Occupational Safety and Health)

3. Measures for reducing risks to young workers include these four: Intervention during the first few weeks of employment; training to ensure that safe work practices are effectively communicated and applied; site orientation; and an industry-wide basic accreditation training program. (Alberta Occupational Health and Safety Department)

4. Two major factors in young workers’ injuries and fatalities are a lack of training and a lack of experience.

5. In the Canadian province of Ontario, only 40 percent of young workers receive health and safety training before starting their jobs or within their first week of employment. (Construction Safety Association of Ontario)

6. Seven things that supervisors need to cover with young and new workers are: driving home the point that they are always to ask for help when they are unsure about anything; proper equipment operation, including mandatory use of machine guards and lockout mechanisms; emergency procedures and equipment; when and how to use personal protective equipment; your company’s health and safety rules; correct lifting techniques; and good housekeeping practices. (Workplace Safety and Prevention Services)

7. While they may lack experience, new and young workers provide three important benefits to workplaces: they often ask good questions; they provide a fresh set of eyes; and they frequently offer new ideas. (WorkSafe Victoria, Australia)

FATALITY FILES
Two Workers Killed in Crane Lift Incident

Two workers at a firehouse construction site in Hanover, NJ, died when a 10,000-pound generator being hoisted by a crane fell, after one or more lifting straps broke.

News accounts indicate that the workers were not directly under the crane boom or generator when it fell. Rather, it fell from a height of about five feet, landing sideways before striking the workers.

Joseph Donahue Jr., 25, died at the scene, while Robert Derkacs Jr., 45, died later in hospital.

Donahue, who was an avid outdoorsman, is survived by his high school sweetheart and wife, Nicole Donahue, his parents, two brothers and two sisters-in-law.

Derkacs was an electrician and foreman for Boz Electrical Contracting in Vernon, NJ.

The two workers were involved in construction of the Whippany Fire Department firehouse. OSHA is investigating.