



# Safety News

*Dedicated to ensuring the safest and healthiest working environment for our members*

Summer 2022 | Issue 23

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## Our Vision

The United Association and its local unions will apply its best practices and resources to build the best educated and safest workforce in all sectors of the piping industry.

## Message from Jennifer Massey Health, Safety and Environmental Administrator



Dear Brothers and Sisters:

Summer can be a time to slow down a bit, but for us in the trades, jobsite activity really heats up along

with the weather. In this issue, we've addressed working in the heat and share information about Energy-Based Hazard Recognition, a key to increased worker safety year-round. We've also considered the somber topic of workplace deaths, triggered by the AFL-CIO's release of its annual report on the issue. I hope you will read our summary and the full report with an eye on making needed adjustments in your workplace.

I expanded my career into Occupational Safety and Health so I could increase my role in empowering workers to speak out and ensuring their safe return home each day. The UA Standard of Safety is one of the three cornerstones of our organization's Built on Excellence initiative. I concur with UA General President Mark McManus's recent message about this Standard. He said, "The UA Standard for Safety embodies our core values that every worker has the right

*The Standard for Safety is driven by the UA's core value in which we believe every worker has a right to go home from the job in the same shape as when they arrived at the workplace.*

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to go home from the job, just as he or she arrived, free from injury." Within this core value, the UA is committed to protecting the safety and health of our members, contractors, project owners, and the communities in which we work.

Until there are zero fatalities, injuries, and incidents, we must continue to improve our hazard awareness, mitigation methods, and pre-planning. The UA defines a successful

project based on three priorities—safety, quality, and productivity. This balance makes the UA a true industry leader.

I welcome your thoughts on the topics in this newsletter or others we can address together. Please contact me at [jmassey@uanet.org](mailto:jmassey@uanet.org). ■





**Hurry, there's still time!**  
**ITP registration is open until July 7.**

## 2022 OSHA Outreach Training Update

### Upcoming Outreach Trainer Courses

**OSHA 510 Course 2150**  
**OSHA Standards for the Construction Industry**  
 (Prerequisite for OSHA 500)

August 8-11, 2022 ..... GLRTC  
 Ann Arbor, Michigan

This date enables participants to be eligible for OSHA 500 during ITP week.

**OSHA 510 Course 2150**  
**OSHA Standards for the Construction Industry**  
 (Prerequisite for OSHA 500)

October 3-6, 2022 ..... GLRTC  
 Ann Arbor, Michigan

**OSHA 500 Course 2151**  
**OSHA Standards for the Construction Industry**  
 (OSHA 510 is a prerequisite)

November 14-18, 2022 ..... GLRTC  
 Ann Arbor, Michigan

Registration is open and spaces are limited. Reserve your spot today.

## SAFETY AT WORK



## Workplace Deaths in America: Reporting the Realities, Specifying Solutions

We all know the profound impact of workplace deaths on our companies, families, customers, and the community. As safety and training professionals, our ultimate goal is to avoid such tragedy. For more than 30 years, the AFL-CIO has addressed this topic in its "Death on the Job" annual report. The UA is providing a high-level summary of key findings and recommendations from the April 2022 report's Executive Summary. I encourage you to read the entire report, available as a free download [here](#).

### In 2020:

- Three hundred forty workers died each day from hazardous working conditions.
- Four thousand seven hundred sixty-four workers were killed on the job in the United States.
- An estimated 120,000 workers died from occupational diseases.
- The job fatality rate was 3.4 per 100,000 workers.
- Latino and Black workers remain at greater risk of dying on the job than all workers.
- Older workers are at higher risk, representing more than one-third of workplace fatalities among workers ages 55 and older.
- Employers reported nearly 3.2 million work-related injuries and illnesses.
- Musculoskeletal disorders continue to make up the most significant portion (21%) of work-related injuries and illnesses.
- Underreporting is widespread—the actual toll of work-related injuries and illnesses is 5.4 million to 8.1 million yearly.

### Industries with the highest fatality rates in 2020 were:

- Agriculture, forestry, and fishing and hunting (21.5 per 100,000 workers)
- Transportation and warehousing (13.4 per 100,000 workers)

### DEATH ON THE JOB THE TOLL OF NEGLIGENCE

A NATIONAL AND  
 STATE-BY-STATE PROFILE OF  
 WORKER SAFETY AND HEALTH  
 IN THE UNITED STATES  
31ST EDITION - APRIL 2022

AFL-CIO

- Mining, quarrying, and oil and gas extraction (10.5 per 100,000 workers)
- Construction (10.2 per 100,000 workers)
- Wholesale trade (4.6 per 100,000 workers)

## The High Toll of Job Injuries, Illnesses, and Deaths

The cost of job injuries and illnesses is enormous—an estimated \$176 billion to \$352 billion a year. The emotional toll is incalculable. The report cites several studies framing these staggering statistics:

- The 2021 Workplace Safety Index, published by Liberty Mutual Insurance, estimated the cost of the most disabling workplace injuries to employers at more than \$58 billion annually—more than \$1 billion per week. When considering indirect expenses as well, data from a previous Liberty Mutual Safety Index indicates that businesses pay between \$176 billion and \$352 billion annually on workers' compensation losses for the most disabling injuries. The report notes that accounting for industry-acknowledged underreporting and excluding shorter duration injury cases would swell these numbers dramatically.
- A 2011 comprehensive study that examined a range of data sources (Bureau of Labor Statistics, the Centers for Disease Control, the National Council on Compensation Insurance, and the Healthcare Cost and Utilization Project) estimated medical and indirect costs of workplace injuries and illnesses in 2007 to be \$250 billion annually, more than the cost of cancer.

### Nonfatal injuries and illnesses are significant and underreported:

- In 2020, nearly 3.2 million workers across all industries suffered injury or illness on the job. Due to widespread underreporting of workplace injuries, the actual number of injuries and illnesses each year is estimated to be two to three times greater—5.4 million to 8.1 million.
- State and local public sector employers reported an injury rate of 3.9 per 100 workers, 44% higher than the reported rate of 2.7 per 100 among private-sector workers.

## Job Safety Oversight and Enforcement

### OSHA resources in FY 2021 still are too few to be a deterrent:

- There are only 1,719 inspectors to inspect the 10.4 million workplaces, near its lowest number since the agency was founded more than 50 years ago.
- There is one inspector for every 81,427 workers.
- The current OSHA budget amounts to \$4.37 to protect each worker. ■

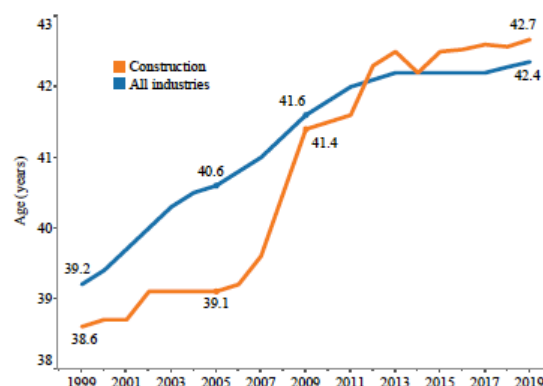
## CPWR Data Specific to Construction Industry Fatalities

Construction is one of the most dangerous industries in the United States. The Occupational Safety and Health Administration (OSHA) has defined the Construction Focus Four hazards (falls, struck-by, electrocutions, and caught-in/between), which are the leading fatal threats to workers in the industry. In its [February 2021 Data Bulletin](#), CPWR summarizes trends in fatal injuries among construction workers using publicly available data from the Census of Fatal Occupational Injuries (CFOI), a data collection from the U.S. Bureau of Labor Statistics (BLS) with injury analyses spanning 2011 to 2019. The report covers private and public construction sector fatalities, and stratifies fatal injuries by major demographics and the Construction Focus Four. We've highlighted some of the most illuminating data below, but you can read the full report for more comprehensive insight [here](#).

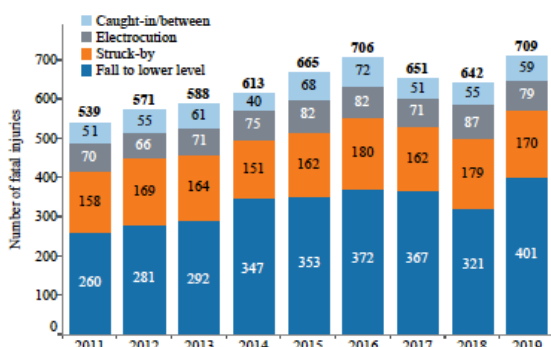
### Key Findings

- The number of fatal injuries in construction reached 1,102 in 2019, the highest level before 2011.
- In 2019, 374 Hispanic construction workers died at workplaces, surging nearly 27% from 2018 and 90% since 2011. For comparison, Hispanic employment in construction rose 55% from 2011 to 2019. Overall employment in construction grew 25%.
- In 2019, falls to a lower level caused 401 fatal injuries—a 25% increase from 2018.
- The Construction Focus Four hazards caused nearly two-thirds of fatal construction injuries in 2019.
- Roof falls were the primary source of fatal injuries in 2019, with 146, escalating more than 28% from 2018, with 114 deaths. In 2011, there were 92 fatalities, so this number continues to rise.

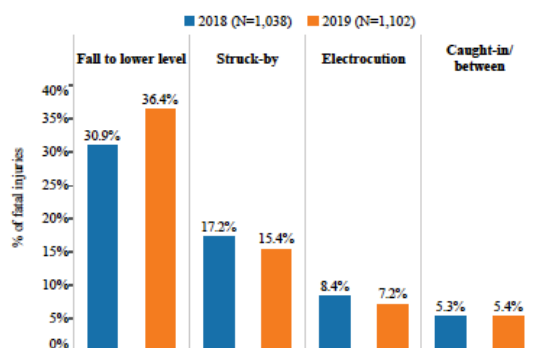
Average age of workers, construction versus all industries, 1999-2019



Number of fatal injuries caused by Construction Focus Four, 2011-2019



Percentage of fatalities caused by Construction Focus Four, 2018 versus 2019



Find additional [construction industry data](#) from the National Institute for Occupational Safety and Health (NIOSH). 

## Science Shows a Better Way to Recognize Hazards

The key to preventing accidents, injuries, and fatalities at work is to recognize their potential and then act to avoid the identified hazard. Easier said than done—and scientific studies are finding indications that human biology is part of the reason why. Dr. Matthew Hallowell, Executive Director, and his team at Safety Function have applied research to a new hazard recognition approach that improved results by 20-30%. Their white paper, *The Energy Wheel: Review of the Art and Science of Energy-Based Hazard Recognition*,

provides compelling data and practical applications on the job. Their vision, and ours, is to eliminate serious injuries and fatalities in construction.

### Why is it hard to see potential hazards?

Hazard recognition is vital for most safety activities, such as completing pre-job safety briefings, safety observations, and design reviews. Safety management has significantly improved over the last 50 years, but the industry still assumes that workers can see all present or emerging hazards. Recent research suggests something different—these hazard-recognition skills are not as accurate as initially assumed.

As organizations have learned more about safety incidents, hazard recognition has emerged as a root cause in about half of them. It is interesting to note that because hazards seem so obvious in retrospect, many incident investigations have concluded that the workers were complacent or negligent. For example, the assumption was that an employee saw the hazard but continued to work in an unsafe manner around it. However, when researchers considered the worker's perspective before an incident occurred, science suggests the worker overlooks some hazards because of blind spots that affect us all. ***In other words, what we once considered complacency may be a predictable biological limitation.***

Most scientific understanding of hazard recognition lies in the branch of applied psychology known as situational awareness, which is perceiving a vital stimulus, understanding its meaning, and anticipating outcomes. In safety terms, this involves:

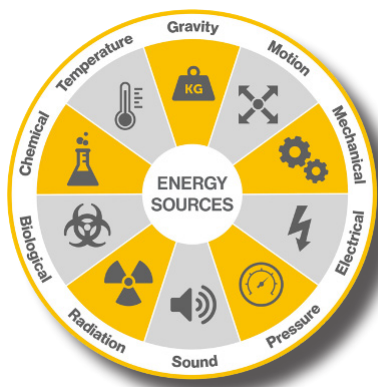
1. Recognizing the presence of danger (hazard recognition).
2. Judging the level of danger posed by the hazard (risk perception).
3. Deciding how to behave around the hazard (risk tolerance).



### Using the energy wheel to improve recognition

Field research has revealed that work crews are adept at recognizing hazards associated with the energy forms of gravity and motion, like falls from height, suspended loads, uneven work surfaces, and mobile equipment. However, workers often miss hazards associated with other forms of energy like tension, compression, chemical, temperature, and radiation. These trends transcend industry, trade, age, and level of experience.





Brain imaging research has helped scientists understand why some hazards are identified and others are overlooked. The imaging revealed that commonly identified hazards such as gravity and motion require comparatively little cognitive effort because they are processed instinctually in the amygdala, the part of

the brain responsible for the fight or flight response. Alternatively, the more commonly missed hazards require higher cognitive effort because they are processed in the cerebrum, the part of the brain responsible for complex thought and decision making.

The energy wheel is a simple and effective tool that augments typical brain processing. Regarding the energy wheel, workers have reminders of all energy sources, especially those more often overlooked (mechanical, pressure, radiation, and chemical). This visual tool helps crew members think more broadly about the dangers in their work environment.

The use of the energy wheel has consistently improved hazard recognition skills by approximately 30% across industry sectors and trades. The method is quick and easy to implement in the field, requiring only basic training and no additional safety burden. Collaborative work between industry professionals and researchers has generated irrefutable evidence to move the “hazards as energy” concept from theory to a scientifically valid and impactful method in practice.

### Key takeaways

1. In pre-job safety briefings, workers identify only about 45% of the hazards that they face during the work period.
2. Hazard recognition blind spots are consistent and predictable, regardless of trade, experience, or education.
3. Hazards that are easily identified (gravity and motion) are recognized instinctually and require comparatively low cognitive effort.
4. Hazards that are most often missed (mechanical, pressure, and chemical) are processed in the cerebrum and require relatively high cognitive effort.
5. Field experiments showed that using the energy wheel improves hazard recognition by approximately 30%.
6. The energy wheel is effective because it provides a simple set of reminders to search for hazards that are commonly overlooked.

### More resources

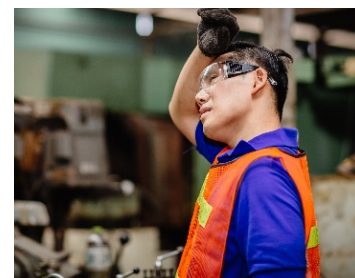
- Utilize the [OSHA hazard training tool](#)
- Sign up for the Energy-Based Hazard Recognition course next year (watch for the 2023 regional course calendar) ■

## HEALTH AT WORK



### Working in Heat

Summer's warm days are great for recreation but not so much for full days of physical work. Working in the heat for extended periods, either inside or outside, can lead to heat-related illnesses and even death. Employers need to implement a plan to keep workers safe.



#### Who's at risk?

Anyone working in hot and humid conditions could suffer from heat stress, particularly if they do heavy physical labor for eight hours or more. Direct sun exposure, extreme heat, and limited air movement worsen things. Other factors include wearing bulky protective clothing and equipment and not drinking enough water. Those who are not used to the heat need extra consideration.

#### How employers can protect workers

**Plan:** Designate a person to prepare, implement, and manage a heat illness program and emergency plan. Consider consulting a healthcare professional in preparing your plan. Components should include:

- How to identify heat illness.
- What to do when someone is showing signs of heat illness.
- Emergency help contact information.
- First-aid measures to take until professional help arrives.

**Identify:** Track hazardous heat conditions in both outdoor and indoor work settings. Use tools such as OSHA's Heat app, a Wet Bulb Globe thermometer, or the National Weather Service heat index for accurate assessments.

**Train:** Educate supervisors and workers about heat hazards, prevention, and safety protocols.

**Drink:** Provide clean, cool water—about 32 ounces per hour—and the time to drink it.

**Cool:** Schedule frequent breaks for cooling off.

**Acclimate:** Gradually increase workloads for those who are new to working in the heat and for everyone in extreme heat conditions.

**Modify:** Shift work schedules to limit physically demanding tasks during the hottest parts of the day; defer nonessential tasks until temperatures drop.

**Monitor:** Establish a buddy system where employees watch for symptoms. Train everyone to report and respond when someone is experiencing heat illness.

## Resources:

[CPWR Working in Hot Weather flyer](#)

[OSHA Protecting Workers from the Effects of Heat fact sheet](#)

## Safety Awareness Dates for Your Calendar

July 10-16, [Operation Safe Driver Week](#)

July 31, [Heatstroke Awareness Day](#)

August 11, [National Safe Digging Day](#)

August 15-21, [Safe + Sound Week](#)

## What is Heat Illness?

### Heat Stroke

**What it is:** When the body's temperature-regulating system fails, and a person's temperature rises to a critical level over 104, this is a medical emergency that may result in death! Signs include lack of perspiration, confusion, loss of consciousness, and seizures.

**What to do:** Call 911! Then move the worker to a shady, cool area. Remove as much clothing as possible. Place cold, wet cloths or ice over the whole body, soak clothing with water, and circulate air to help speed cooling.

### Heat Exhaustion

**What it is:** Signs of heat exhaustion include headache, nausea, dizziness, weakness, irritability, confusion, thirst, heavy sweating, and elevated body temperature.

**What to do:** The worker should move to a cooler place and drink plenty of liquids. Use cold compresses or water on the head, face, and neck. Make sure someone stays with the worker and call 911 if conditions worsen. A medical evaluation is advised.

### Heat Cramps

**What it is:** When the body loses salt and fluid through perspiration, the individual may feel muscle pain called heat cramps.

**What to do:** Drink plenty of water and or an electrolyte replacement liquid (sports drink) every 15-20 minutes.

### Heat Rash

**What it is:** Caused by excessive perspiration, heat rash looks like a red cluster of small blisters, particularly on the neck, upper chest, groin, under breasts, or elbow creases.

**What to do:** A cooler work environment is ideal, but when that's not possible, try to wear lighter, moisture-wicking clothing to help keep the rash dry. Powder can help, but avoid ointments and creams.