



Honeywell | Industrial Safety

WHITE PAPER / KEEPING YOUR WORKERS SAFE

Avoiding Danger in Demanding Industrial Environments



Falls, shocks and inhalation injuries are part of the everyday hazards in some industrial workplaces. You want to keep everyone safe, but the injury statistics are ominous. More than 14 workers die at work every day, in the U.S. — ***and many of them are preventable.***¹

This white paper helps you learn about the most common hazards and casualties in each industry, so you can take appropriate measures to protect your workers with world-class products.

*More than that, though, you need industry-leading partners who work with you, help design and deploy the systems to preserve your most important asset: **your workers.***





Industrial work is dangerous, and the numbers tell the tale.²

The U.S. Bureau of Labor Statistics reports that 5,147 workers were killed on the job in 2017³— 3.5 per 100,000 full-time workers.

That's an average of 99 fatalities every week — more than 14 every day. Each one is someone's parent, spouse, child.

Deaths and injuries aren't evenly distributed across industries; some are noticeably more dangerous than others, reports the National Safety Council.⁴

The U.S. Occupational Health and Safety Administration (OSHA) says that more than 21% of all worker fatalities happened in construction: falls, being hit by objects, electrocutions and being crushed.⁵

In the agriculture industry, the injury rate was 90% higher than for the average industrial worker in 2017.

About 80% of fatalities were related to transportation and being struck by objects or equipment. Falls, slips and trips accounted for 27% of non-fatal injuries, OSHA reported⁶, and 7% of fatal injuries, in 2017

Falls, slips and trips accounted for 39% of fatal injuries for construction workers⁷, and another 14% were caused by exposure to harmful substances and environments.

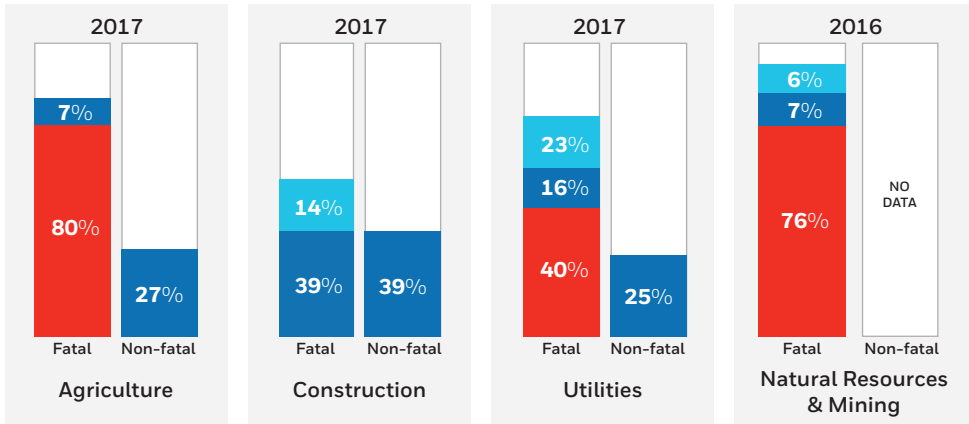
Of those non-fatal injuries, 39% were caused by falls, slips and trips. In all, construction workers had a 40% higher incidence of injury than the typical industrial worker did in 2017.

In the utilities industry, the story is much the same: nearly a quarter of all non-fatal injuries were caused by falls, slips or trips.⁸

40% of deaths happened in transportation incidents, 16% resulted from falls or slips and 23% from exposure to harmful substances or environments.

The natural resource and mining industry, which includes oil and gas exploration, accounted for 13% of all industrial deaths in 2016.

45% of them in transportation incidents (nearly 6 deaths a week) and 31% of them from "contact with objects and equipment." 7% of the fatalities came from falls, and another 6% from exposure to harmful substances.



■ Transportation and being struck by objects or equipment
■ Falls, slips and trips
■ Exposure to harmful substances



But when a worker at your company is hurt, all those statistics turn to dusty numbers. People matter. You want to prevent every injury that can possibly be prevented — even when you work in a dangerous environment.

A look at the numbers over time shows that the fatalities are declining each year, but the decrease is slow.

Surely it's possible to do better to reduce the human and monetary costs of industrial accidents. That's where Honeywell comes in.

In any industrial environment, the ideal situation is to minimize danger and prevent a worker from being in a menacing situation in the first place.

Yet the very nature of the job is menacing: an electrical worker repairing tornado damage must climb an unsteady electric pole; a firefighter battling the blaze needs to go into frightening environments.

Demanding work and difficult environments require intelligently designed equipment that ensures safety and yet is comfortable and easy to use.

Honeywell designs its gear with the wearer in mind, giving workers life-saving products that also enhance productivity in dangerous work environments. We work with you to keep you up to date on regulatory and compliance issues, and to help you design procedures that make sure all your workers go home safe at night — **every night.**

***At Honeywell,
99.99% safety
is nowhere near
good enough.***

*Just how serious are
the dangers? Let's
get familiar with the
hazards in the
industries with the
highest casualty rates,
so you can take
appropriate measures.*



Falls Have a Big Cost in Construction

At the top of the hazard charts for OSHA are falls, which are the leading cause of deaths in the construction industry. 5,147 workers were killed on the job in 2017, most commonly in construction, with falls the leading cause (381 out of 971 total deaths in construction).⁹

Falls are caused by floors that are slippery, wet, badly lit, uneven, or filled with trash; and by stairs and ladders that are badly maintained or carelessly used.

Not surprisingly, more and more falls are being blamed on “distracted walking”; the National Safety Council says more than 10,000 people have been seriously injured on the job in the past decade because they were staring at their phones instead of where they were going.¹⁰

The basic components of fall protection are as easy as ABC:

- **Anchor** (something to anchor yourself to)
- **Body** (harness fitted to the worker)
- **Connection** (tether the body to the anchor)

Honeywell has an extensive history of innovation in fall protection.

For 65 years, its **Miller brand** has been the global industry leader in Safety at Height Solutions, meeting the demand for ever-greater safety, increased comfort and improved productivity. Products include full-body harness body wear, connecting devices, anchorage connectors, ladder climbing systems, and confined space and rescue devices.

Beyond products.

Honeywell partners with you, providing safety assessments, project consulting and design, component testing, installation and professional protection training.

Even when accidents are survivable, the U.S. Bureau of Labor Statistics says that about 76,000 workers are disabled by serious shock and burn injuries every year.



Electrical Hazards Are a Leading Cause of Death in Industrial Environments

Year after year, electrical safety accidents rank in the top 10 of industrial deaths – often in the top 5.

The main hazards are contact with live parts, faults which could cause fires, and fires or explosions that are sparked by electricity in explosive environments.

Most commonly, accidents happen when technicians work on overhead power lines with damaged tools and gear, on overloaded or improperly grounded circuits, on electrical parts that are exposed or have damaged insulation, or in wet conditions.

Some situations are especially dangerous.

Arc flashes triggered by contact with energized equipment are a triple threat, as they cause dangerous releases of energy, deafening noise and debris. Nor are they rare; arc flashes cause about 10% of all electrical injuries.

Personal protective equipment (PPE) is the last line of defense in any industrial situation, and is critical in preventing injury or death.

But electrical safety is more than that: it's making certain that your equipment meets or exceeds standards and that your operation complies with complex and specialized regulations.

Honeywell's [Salisbury product line](#) is the world leader in the manufacturing of PPE that complies with ASTM requirements and OSHA standards.

We offer a complete solution, with live line tools as well as insulating rubber gloves, blankets, line hose, temporary grounding equipment, voltage detectors, clamp sticks, distribution dead-end insulators, plastic cover-up and dielectric boots.

Typically, companies bring in electrical safety consultants to assess their equipment and processes and ensure compliance.

Honeywell offers that expertise itself, and can outfit your operation with [appropriate PPE](#) once the assessment is done.

Honeywell Salisbury has been in business since 1855 and making lineman's gear since the 1920s.

Our patented technology is focused on quality, durability and usability. What's more, we're constantly innovating. Our new Electriflex safety gloves, for instance, include non-metallic RFID tags that talk to our SafetySuite software (or to your own software). Besides asset management, you can track how often the gloves are used, and can manage safety compliance and reporting.



Help Workers Breathe Easier, Longer

About 5 million workers in the United States are required to wear respiratory protection in 1.3 million workplaces every year, according to OSHA.¹¹

Many of them don't.

Maybe the gear's uncomfortable or constricting, or it limits the worker's field of vision. Maybe it's something as simple as a respirator that won't fit over his beard.

Workers need respirators when they work around dusts, fogs, smokes, fumes, gases, vapors or sprays, according to OSHA.

Ignoring that requirement because a respirator is inconvenient can carry a high and potentially life-altering price.

Here are some of the top hazards:

- **Crystalline silica:**

Respirable crystalline silica (RCS) is fine particulate, 1/100th the size of an ordinary grain of sand. It can penetrate deep into the lungs of employees working with rock, concrete, brick, block and mortar, causing silicosis, a chronic disease that affects workers around construction, sandblasting and mining.

- **Black lung disease:**

Coal Workers' Pneumoconiosis (CWP), commonly referred to as "black lung," is a respiratory illness caused by inhaling coal mine dust. Its incidence declined after the 1969 Coal Act invoked stricter health and safety rules. But it's making a comeback:¹² 2015 levels surpassed 1975 levels, despite a three-fold increase in federal funding, to \$10 million, to fight the disease.

- **Welding fumes:**

Welding fumes have always been a known hazard to workers and a latent carcinogen. But in 2017, the International Agency for Research on Cancer (IARC) updated its classification for welding fumes to Group 1 carcinogens¹³ — agents that pose sufficient risk of cancer in humans. Specifically, they determined that welding fumes increase the risk of lung cancer, and to some degree, kidney cancer and chronic inflammation.

- **Wildfire smoke:**

The number of acres burned in the United States in 2017 was the second highest since the 1950s¹⁴, following only 2015. The National Institute of Occupational Safety & Health (NIOSH) says at least 350 wildfire fatalities were recorded from 2000–2016, with smoke inhalation being one of the attributable causes of the deaths. Wildfires are responsible for chronic illness and fatalities for the first responders, firefighters and supportive workers who are in and around such fires.



- **Asbestos:**

NIOSH found that one in four construction workers claims exposure to asbestos¹⁶, but that two-thirds of their respondents didn't know that the exposure could cause cancer. And most people weren't sure what to do if they did discover asbestos at a work site. That's a double whammy, because it also demonstrates a knowledge gap between safety manager and their construction teams.

- **Hydrogen sulfide:**

Animal waste is a major source of hazardous gases, including ammonia and hydrogen sulfide. In mid-2018, the U.S. government exempted farms from reporting such pollutants to federal regulators.¹⁷ With the shift of regulatory responsibility to the states, compliance with any remaining rules will become more complex, at best.

- **Agricultural dusts:**

Agricultural environments involve numerous respiratory risks, from grain dust that is mixed with mold, plant material, animal hair and dander, and feces to dirt stirred up by plowing. One report¹⁸ cited a pulmonary disease specialist who said that between 10 and 15 percent of people who work around grain have chronic respiratory symptoms; for workers in and around animal confinement systems, this could reach 25 percent.

Honeywell has a complete respiratory offering, running from dust masks to SCBAs.

With world-class comfort, fit and reliability to keep workers safe and productive, and with training and educational material to help workers make safer choices on their own, Honeywell Industrial Safety provides protection for every breath you take.

For instance, Honeywell's welding helmet features lightweight design, a three-speed fan to keep workers cool, improved comfortable fit and the lightest auto-darkening filter on the market.

For workers with facial hair who need to wear tight-fitting respirators, Honeywell North's PAPR welding solution provides a loose-fitting, beard-friendly fit.



Protecting Your People

Although top-quality gear is central to maintaining safety in the most hazardous environments, safety is more than the equipment. It's about connecting with trusted partners who have decades of experience, whom you can turn to for advice, planning and training.

**Honeywell is more than equipment.
We help you establish and maintain a culture of
safety and innovation, so no one on your team
becomes a statistic.**

Visit our site www.honeywellsafety.com or contact a Honeywell representative at **1-XXX-XXX-XXXX** to learn more about high-risk solutions.

Notes

¹Fall Protection in Construction, Occupational Safety and Health Administration https://urldefense.proofpoint.com/v2/url?u=https-3A-www.osha.gov_Publications_OSHA3146.pdf&d=DwlFaQ&c=Ftw_YSVcG_mqQB_vrGwAZugGylN_Rkk-uER0-5bY94tjsc&r=1YgtjunjNXzW5E_aQGS4XsOrz8ckQVQ8kR6q-Y5qZl&m=6JqJ5EZeeg3jOjAcFqVgkqZ2LujqfY_2bHLDORNNY64&s=yYz-MABFU1qm_ysX3A_Pd6nYZ_hHHf-DhAeebp_TQ7_2c&e=

²<https://injuryfacts.nsc.org/work/work-overview/top-work-related-injury-causes/>

³U.S. Bureau of Labor Statistics <https://www.bls.gov/news.release/cfoi.nr0.htm>

⁴National Safety Council <https://injuryfacts.nsc.org/work/industry-incidence-rates/industry-profiles/>

⁵OSHA Data & Statistics <https://www.osha.gov/oshstats/commonstats.html>

⁶Ibid.

⁷Fall Protection in Construction, Occupational Safety and Health Administration <https://www.osha.gov/Publications/OSHA3146.pdf>

⁸U.S. Bureau of Labor Statistics https://www.bls.gov/web/osh/summ1_00.htm

⁹<https://www.bls.gov/news.release/cfoi.nr0.htm>

¹⁰<https://ehsdailyadvisor.blr.com/2018/06/managing-common-fall-hazards-every-workplace/>

¹¹<https://www.osha.gov/SLTC/respiratoryprotection/>

¹²The National Institute for Occupational Safety and Health Data, <https://www.cdc.gov/niosh/updates/upd-07-20-18.html>

¹³American Industrial Hygiene Association, <https://www.aiha.org/publications-and-resources/TheSynergist/Industry%20News/Pages/IARC-Welding-Fumes-UV-Radiation-from-Welding-Are-Carcinogenic.aspx>

¹⁴https://www.nifc.gov/fireInfo/fireInfo_stats_totalFires.html

¹⁵<https://fas.org/spp/crs/misc/IF10244.pdf>

¹⁶National Institute for Occupational Safety and Health Data https://www.cdc.gov/niosh/programs/review/pdfs/NIOSH_Construction_Program_Evidence_Package_April_2018-508.pdf

¹⁷<https://www.epa.gov/epcra/cercla-and-epcra-reporting-requirements-air-releases-hazardous-substances-animal-waste-farms>

¹⁸<https://www.myjournalcourier.com/news/article/Growing-sick-More-farmers-see-connection-between-12779786.php>

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