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After a year of taking classes online, my nephew Connor is finally heading off to college this month as a sophomore for the kind of experience most people have as freshmen. Even though he'll physically be on campus, instead of sitting at a computer in his bedroom, school will still be much different from what it was pre-pandemic. Like many colleges, Connor's will require all students and faculty members to be vaccinated against COVID-19 (with limited exemptions for medical or religious reasons). Thanks to the surge of the Delta variant, masks must be worn indoors, in all campus buildings - at least for the first few weeks of the fall semester. Remembering my college years, I can't even imagine how my dormmates and I would have responded to the restrictions imposed by the pandemic. There would have been fear, but also, likely, rebellion against the rules - at least from some.

After making it through lockdowns and toilet paper shortages, learning how curbside pickup works and adjusting (for many of us) to working from home, it seemed that the summer was going to bring us relief from the worst public health crisis in more than a century and that the fall would let us return to some semblance of normalcy. Instead, a surge caused by a variant and fueled by the high number of unvaccinated people in this country has sent the numbers in the wrong direction. Once again, hospital ICUs in some areas are full.

Companies, like individuals, are struggling with how to respond to the alarming data being released by the CDC. Some of them have delayed requiring workers to return to offices. In certain industries, of course, working from home was never an option. Employees of warehouses, distribution centers, manufacturing facilities and other types of operations served by this magazine reported to their worksites throughout the pandemic, albeit with new safety and health protocols in place. The way so many industries were able to pivot quickly and effectively to new ways of doing things in order to reduce the chances of the virus being transmitted was nothing short of remarkable. It looks as if we'll all have to keep many of the changes in place for a while longer. Some of them will likely become permanent fixtures in our lives.

I hope Connor enjoys his college experience as much as I enjoyed mine, but I can't see how that can happen. I was young and carefree, worried only about turning papers in on time and cramming for final exams. Connor has to worry about a deadly virus.

I hope we are all able to return to some semblance of normalcy in the near future.

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A RDG Media, Inc. Publication

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A Packed PACK EXPO will Focus on the Future



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The organizers of this year's PACK EXPO, to be held September 27-29 in Las Vegas, are making some pretty big promises when it comes to what attendees can expect. For one, they're calling it "The World's Most Comprehensive Packaging and Processing Event." They also say that; "no other event in 2021 will bring together a more comprehensive gathering of packaging and processing suppliers, ideas and industry professionals."

The Las Vegas Convention Center will, indeed, have a lot going on during those three days in late September. Among the educational sessions: 30-minute seminars on breakthroughs and best practices that will take place at various Innovation Stages. Their length and variety of topics will make these seminars especially convenient to show-goers. No registration is required. Attendees can simply stop by whenever they can to learn something new. The PACK to the Future Stage – located within the PACK to the Future exhibit - features presentations by industry experts that showcase advancements such as sustainable

solutions, smart packaging and artificial intelligence. The exhibit itself is described as "a voyage of discovery into the special association between people and packaging." The Processing Innovation stage – new this year, will focus on the latest breakthroughs in processing.

In addition to presentations in the Reusable Packaging Learning Center, there'll be lively discussions taking place in the Forum, an "industry knowledge exchange." The 45-minute sessions will begin with short presentations by topic experts and then become more interactive, turning into roundtable discussions among peers. Forum seminar topics cover issues important to the packaging industry, like

- Where are You in the Automation Timeline?
- Risk Assessment of Legacy Machinery
- Driving Packaging Line Performance
- Leveraging Resources in Today's World of Challenging Food & Beverage Manufacturing
- Key Trends in Robotics Applications
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And of course, a big draw of PACK EXPO is the opportunity to see state-of-the-art packaging equipment; materials and containers; automation technologies and digital packaging solutions up close – and often in action. Full scale packaging and processing machinery, for instance, will be rumbling in every hall of the convention center throughout the show. It's a unique opportunity to see technology in operation and to ask questions from vendors in person.

Throughout the hall, specialty pavilions will focus on solutions in the categories of containers and materials, confectionery, digital printing, processing and reusable packaging. A Future Innovators Robotics Showcase is bound to attract a lot of attention. So is the Amazing Packaging Race, which takes place on the final day of the show and pits student teams against each other in completing tasks (assigned by exhibitors) that they must complete throughout the nearly 900,000 net square feet of show floor. Students who can't participate in person can take part in the Amazing Packaging Race – Scavenger Hunt, a virtual race in which students must answer questions sent in advance from exhibitors. Students will be encouraged to answer questions by searching the exhibitors' websites and/or social media accounts.

The educational sessions, product exhibitions, technology demonstrations and special events are intended to expose attendees to new technologies (including some they may not have realized existed) that can help push their businesses forward; to help them discover solutions, stay on top of trends and find out what competitors are doing through networking; to get the information that will enable them to make the right capital investment decisions for their needs; to get answers to improve production and achieving sustainability quickly and efficiently; and to be ready to adapt to changing market conditions.

So, who will be making their way to Las Vegas for this year's PACK EXPO? Professionals from all packaged goods industries will attend, including:

- Brand managers and marketers
- Corporate, general, plant and project managers
- Engineers
- IT professionals
- Logistics and supply chain management professionals
- Operations and quality control professionals
- Package designers, brand managers and marketers
- Package development/design
- Procurement
- Production supervisors
- Validation/compliance

In keeping with the way many conventions pivoted to a digital version during the pandemic, PACK EXPO is offering a digital experience, for those who are unable to or prefer not to attend in-person. It's called PACK EXPO Xpress, and it allows registrants pre-recorded session viewing options during the show and on-demand following the show. They'll also have exhibitor online showroom access, so they can view products and demonstrations via their computers. **WMHS**

PACK EXPO is produced by the Association for Packaging and Processing Technologies (PMMI), which represents more than 900 North American manufacturers and suppliers of equipment, components and materials as well as providers of related equipment and services to the packaging and processing industry. PMMI's portfolio of trade shows includes: PACK EXPO International, PACK EXPO Las Vegas, Healthcare Packaging EXPO, PACK EXPO East, EXPO PACK Enlace, EXPO PACK México and EXPO PACK Guadalajara. For more information, visit www.packexpolasvegas.com.

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In A Global Economy, Keeping Conveyors Running Is Key

By: **Maureen Paraventi**, *Editor*

Remember way back in 2012, when we'd order something online and be glad to get it – on average – in five or six days?¹ The continuing acceleration of e-commerce delivery systems has habituated consumers to receiving their packages much more quickly than that. In 2019 the average wait for purchases ordered online was two-to-three days, according to one estimate.² Now, packages may be delivered the day after or even on the same day an order was placed.

What was formerly a unique selling point (USP) on the part of many companies is now a standard operating procedure (SOP) across a variety of industries. Consumers have come to expect a speedy delivery, and not getting one may cause them to take their e-business elsewhere.

A key ingredient in making all that almost-instant gratification possible is, of course, the conveyor. The increasing globalization of the economy and the accompanying rise in e-commerce – especially during the pandemic, when many

people are reluctant to go into brick-and-mortar stores to do their shopping – have helped fuel growth in an already-robust conveyor industry. Valued at \$7.73 billion in 2019, the market for these vital material handling systems is expected to reach \$10.7 billion by 2025.

While Henry Ford often gets the credit for introducing conveyor belts to the world by implementing a conveyor belt assembly line in 1913 at a Ford Motor Company auto factory in Michigan, the first conveyor system may actually have been in use as early as 1795. Although primitive, those early versions – which used hand cranks and pulleys to run leather belts over wooden beds – succeeded in moving massive loads of coal and ore. The innovators who came up with them would likely not recognize modern conveyors.

Twentieth-century improvements in conveyor systems included the half-twist, which made belts last longer by distributing wear more evenly and the development of a plastic, modular conveyor belt. Emerging trends in conveyor technology include the reduction of workplace noise through the use of energy-efficient powered rollers; the use of distributed autonomous controls to lower costs associated with central processors; greater automation with robotics and environmentally-friendly design changes such as energy-efficient motors, motor-driven rollers and automatic sleep controls.

Used in the packaging, food processing, pharmaceutical, chemical, automotive, agricultural, aerospace and electronic industries, among others, conveyors will continue to evolve and be a major player in material handling. It is important that conveyors function as needed, and for that to happen, companies must be able to get conveyor parts quickly and reliably. Any significant downtime in today's high-pressure economic environment can be costly.

The experiences of two companies in the accompanying case study illustrate the potential perils of parts-related delays, and point to one solution – one which will require a shift in thinking on the part of companies accustomed to dealing with overseas suppliers. In many cases, a domestic supplier can offer a faster turnaround on parts, thereby avoiding stoppages and keeping conveyors operating at full-speed. **WMHS**

For more on conveyors, read our case study on page 12.

1, 2 <https://tinyurl.com/y22nfow6>

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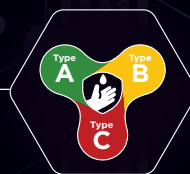


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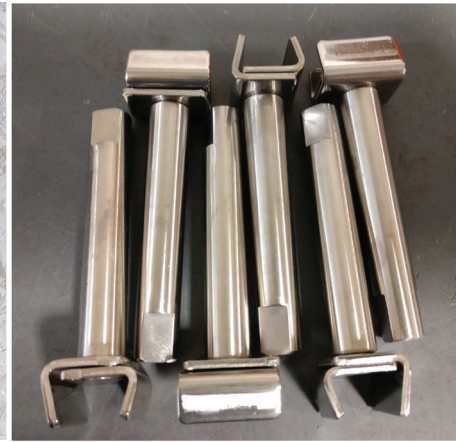
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Expediting Packaging Equipment Manufacture:

Timely Turnaround of Parts and Accessories is the Ultimate Assist in Keeping Conveyors Online

By: **Del Williams**, *Contributor*



For packaging equipment manufacturers that rely on conveyors as part of their process, securing on-time delivery of smaller parts such as guide rails, rollers, levelers, adjusting rods and related hardware can be a critical part of installing new production systems or keeping existing equipment running.

While just small components in massive conveyor systems, such parts play a critical supportive role in terms of the function and effectiveness of the final system -- so much so that failing to receive necessary parts can bring portions of crucial production lines to a halt, potentially costing thousands of dollars per hour in downtime.

Because quick part turnaround is so important, a growing number of industry professionals are turning from overseas suppliers with long lead times to domestic suppliers that can respond to urgent demands in a fraction of the time.

“Lead times are critical for big manufacturers. They only have so much planned downtime to install and integrate new equipment, and cannot tolerate unplanned production downtime, which can cost thousands of dollars an hour in some factories,” said Kenneth Wolff, Operations Manager at Fallas Automation, a Waco, TX-based manufacturer of packaging machinery, case packers and related equipment. “If you cannot guarantee parts and equipment delivery in the needed timeframe, they will not remain a customer for long, so you need a quick response.”

On top of this, partnering with a domestic supplier with the expertise and willingness to tailor these parts to specific requirements can help to optimize production and even aid in the development of new valuable conveyor options and products.

AVOID COSTLY DELAY

For packaging equipment manufacturers, despite the prevalence of international supply chains, when expediting conveyor system installation and replacement parts is essential, the downside of overseas procurement is clearer than ever today.

“Even before COVID-19, we had problems with procuring parts offshore with lead times of eight weeks or more from Asia or Europe. Now with the crisis, such procurement could take even longer and changing trade policy could cause additional delay,” said Wolff.

According to Wolff, many companies now rely on “Just-in-Time” delivery and do not keep much in stock. Complicating matters, he explained that Fallas Automation typically has a very short lead time to custom build its systems for customers, which makes lengthy offshore sourcing problematic.

“Often, we may only have a 22 to 24-week lead time to deliver the complete system, so waiting 8 to 12 weeks for small but important parts from overseas is unacceptable,” said Wolff.

Compared with foreign suppliers that can take weeks or even months to provide components, part turnaround with the domestic manufacturer is usually within a week and can be significantly faster when necessary.

“Working with a domestic supplier like MPC expedites our process, and has helped us out of a bind on more than one occasion,” said Wolff. “Once for an important conveyor equipment shipment, they manufactured and shipped us about 20 parts overnight for next day arrival when the parts were not in stock. In a crunch, they will do everything they can to help you out.”

ELIMINATE PEAK SEASON DOWNTIME

When packaging and packing is required, the need to keep conveyors running can be even greater during peak season.

Harlingen, TX-based Tri-Pak Machinery, Inc. custom designs, engineers and manufactures packinghouse machinery systems for fresh fruits and vegetables, shrimp grading and packing equipment and industrial ice crushers and slingers.

“With impact, abrasion, and wear over time, even the best made machines are inevitably going to require replacement

Compared with foreign suppliers that can take months to provide components, turnaround for packaging parts like guide rail clamps with a domestic manufacturer like Mason Plastics is usually within a week, and can even be significantly faster.

parts to keep production lines efficiently running,” said Tri-Pak Machinery Purchasing Manager Chuck Kilbourn. “That is particularly critical during peak season, when conveyor equipment going down could potentially cost tens of thousands of dollars.”

According to Kilbourn, while effort is made to keep parts in stock, sometimes quick parts turnaround from a domestic supplier is the only practical solution, whether for emergency repair or to supply an important new installation.

“We were shipping truckloads of components cross country for a large multimillion-dollar tomato conveyor and needed roller ends to complete the job,” said Kilbourn. “MPC shipped us what we needed in days when it normally could take weeks, which helped us to complete installation on time.”

In addition to expediting parts delivery, sometimes those involved in industry packaging, packing and processing need tailoring of components to accommodate specific aspects of production.

According to Kilbourn, Tri-Pak Machinery found that partnering with the domestic manufacturer facilitated a number of important conveyor line improvements that have boosted sales.

For example, when Tri-Pak sought to weigh watermelons with a unique method they wanted to develop, using a chain and side-by-side cleats that hold the melon in place, the domestic manufacturer provided valuable input and help.



For packaging equipment manufacturers that rely on conveyors as part of their process, securing on-time delivery of smaller parts like brackets can be a critical part of installing new production systems or keeping existing equipment running.

“We sent them sketches of what we wanted and they went back and forth with us, advising us on various issues such as material strengths, weight, and the best methods to accomplish our goals. They designed and made the mold for the watermelon cleat and it has done really well,” said Kilbourn.

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While effort is made to keep parts like adjusting rods in stock, sometimes quick parts turnaround from a domestic supplier is the only practical solution, whether for emergency repair or to supply an important new packaging installation.

Besides this, he adds that they also helped to develop and produce another part: a clip that aids in smoothly transferring watermelons from a brush unit to a different part of the conveyor.

When Tri-Pak Machinery wanted a heavier duty roller that could take a load better than a standard bushed roller end for a powered roller conveyor, the domestic manufacturer helped there as well.

“They made a special roller for us with a nylon encapsulated ball bearing in it, and it performs just the way we hoped,” said Kilbourn. “They are willing to work with us to ensure the parts are fully integrated with our systems.”

Whether packaging equipment manufacturers require parts for a new installation or unplanned repair, working with an expert domestic supplier can expedite the process, while tailoring parts to the application when necessary.

Ultimately, this approach leads to increased production uptime and greater profit, without the uncertainty or logistical headaches of waiting for offshore shipments that could end up further delayed in customs. **WMHS**

Editor's Note: This article originally ran in Packaging Technology Today in the November 2020 issue.

Del Williams is a technical writer based in Torrance, California. He writes about business, technology, health and educational issues, and has an M.A. in English from C.S.U. Dominguez Hills. For more information regarding this article, visit www.masonplastics.com.

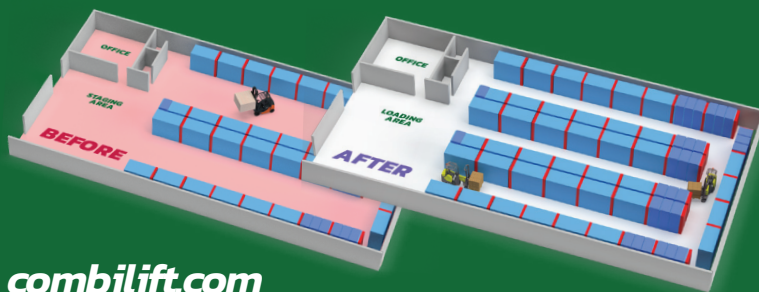
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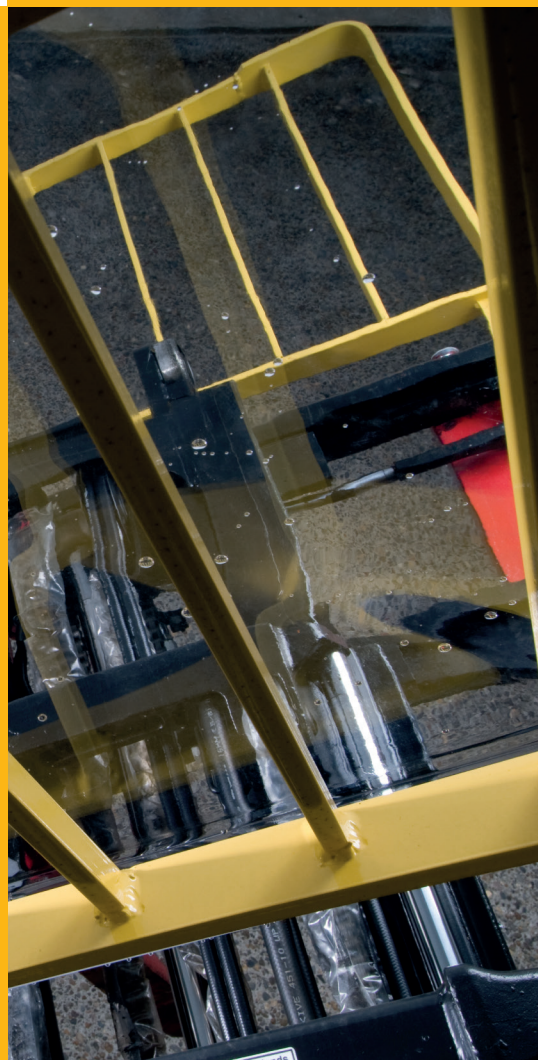


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Jobs for Cobots: Automation as Labor Augmentation

By: **Kevin Paramore**, *Contributor*

The gap between the limits of the labor force and the needs of the supply chain makes robotics not just something nice to have, but something we need to have.

This sets the stage for an approach to automation that breaks sharply from popular paranoia. Robots are not “coming to take away” jobs. They’re valuable tools that help raise overall productivity by working alongside human co-workers—cobotics as a labor-augmentation solution.

What’s the extent of this positive impact on productivity? According to a September 2018 CBRE report, the productivity gain from robotics in the distribution industry is estimated to be as much as 46 %.

ROBOTS IN THE REAL WORLD

Historically, repetitive tasks that do not require the human capacity to think and adapt on-the-fly are prime candidates for automation. With that criteria in mind, managers

can evaluate their most costly, yet important, processes and subtasks.

Take order fulfillment, for example. In the average warehouse, order picking accounts for 50-65 % of total operating costs. What’s more, a deeper look at this process reveals that employees assigned to pick orders can spend up to half of their time traveling between pick locations—not actually picking. The strengths of human pickers and mobile robots best align with different tasks in the picking process and can work together to boost overall efficiency.

Mobile robots are adept at traveling long distances, continuously moving pallet loads and smaller quantities from point A to point B, without breaks or fatigue. They’re advanced enough to detect obstacles and adjust their paths accordingly, relying on their own “map” of the facility to pursue alternate routes.



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Humans, on the other hand, lack the ability to continuously move between pick locations without tiring. However, they do have the most advanced perception, cognition and motion-planning systems in the world. The same capabilities that allow us to set the table and take out the trash are uniquely well suited to find, grasp and move individual items to pick and pack orders.

By dividing tasks according to the strength of each type of worker, both are more productive. Pickers no longer trade picking time for travel time, and storage aisles are in turn relieved from congestion—allowing mobile robots to bring items to pickers as efficiently as possible.

Manufacturing is also home to plenty of cobotics potential. Keeping inventory moving to fuel production lines is an ideal job for mobile robots. Instead of humans retrieving and moving pallet loads or kits, robotic lift trucks can bring them to assembly stations, often interfacing with humans at each end. (photo courtesy Yale Materials Handling Corporation)



Keeping inventory moving to fuel production lines is an ideal job for mobile robots. Instead of humans retrieving and moving pallet loads or kits, robotic lift trucks can bring them to assembly stations, often interfacing with humans at each end. (photo courtesy Yale Materials Handling Corporation)

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lift trucks can bring them to assembly stations. They often interface with humans at each end, before being sent back the other end of the process.

The common thread in these examples is the type of work reserved for humans and their robotic co-workers. Robots excel at repetitive, low-value tasks—just the sort of jobs that lead to the repetitive stress injuries that accounted for 31 % of all workplace illness and injury reports in 2016.

EVOLVING JOBS

History has taught us that innovation creates new tools, jobs and even industries. Just 15 years ago, who would have dreamed of jobs like “iPhone app developer” or “search engine optimization specialist?” Or even further back, industries like “wireless technology” and “ecommerce?”

Robotics are primed for a similar effect on the economy. A recent report by McKinsey & Company includes a top-end estimate of 800 million jobs displaced due to robotic automation. But, in the same scenario, the company estimates significant job growth that more than offsets job losses—up to 890 million new jobs.

In the warehouse, this shift takes shape as updates to existing jobs, like order picking, and a greater need for skilled technical positions. Think robot maintenance, machine supervision and data specialists, all working together to keep systems running; analyze performance; and optimize them for continued improvement.

ROBOTS BECOMING NORMAL

Introducing robots is a big, yet increasingly common shift in large and even smaller enterprises. Continued pressure from ecommerce means key supply chain operations face growing pains that make robot automation an attractive option. Deploying robots to augment labor can drive the necessary productivity gains to meet ever-growing demand, allowing labor and automation to play to their respective strengths. It's a collaborative picture of robots and humans, more akin to *The Jetsons* than the revolutionary, all-consuming machines of the *The Matrix* or *The Terminator* films. **WMHS**

Kevin Paramore is Emerging Technology Commercialization Manager at Yale Materials Handling Corporation (www.yale.com).

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Want to contribute to *Workplace Material Handling & Safety*? Let us know if you have an interest in writing an article for an upcoming issue.

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It is Not Just a Box – Steel Containers for Material Handling

By: **Jillian Burrow**, Contributor

Several quote requests come in daily to a multi-product based, material handling equipment manufacturer for steel containers. “It’s not just a box” would be a great auto response to the generalized request for an assumed universal use bulk steel box.

The thing is, it is more complicated than “just a box.”

EACH REQUEST NEEDS MORE

This is where the Container Specialist comes in. He/she has learned over years of experience that the correct conversation will lead to a custom container solution that meets the needs of the specific customer. It also

avoids the headaches that are created when any missed details occur.

Each request, whether the customer knows it or not is for a specific solution. Each one of these requests comes with a bigger plan in mind. The boxes need to be incorporated into daily material handling practices and furthermore, meet a much more detailed and defined check list of requirements then often thought when initially calling for that quote.

The “just a box” needs to serve the bigger, more specific purpose.

CUSTOM COMES WITH QUESTIONS

This is when the important, pertinent questions must be asked. As always, a happy, well-served customer is the number one priority.

When implementing a container or multiple containers in a material flow, a standard style will often not do. A custom build is more often needed to serve the purpose of unique applications. Keep in mind that most requests are often very vague and only provide dimensions for the boxes sought after. These vague requests create a lot of design assumptions. These assumptions can result in an under or over-engineered container. No one wants that.

Getting it right the first time is essential. That is why a little extra time spent on questioning the requirements, product needs and the customer’s expectations go a long way in avoiding error or misinformation.

The container specialist initiates a conversation to gather important information and create a fully sufficient product.



Knowing the contents is key in determining what type of box construction is needed. Image courtesy of Topper Industrial.

INDUSTRY TELLS A LOT ABOUT THE TYPE OF CONTAINER IS NEEDED

Material handling is important in all industries, but it does not serve the same purpose in all. Collectively, material handling can present itself different in the same space across the same sector.

Therefore, that “box” that is asked to be quoted might not be the box that is required.

A quick start to deciding the correct build and features to a steel container is assessing your industry sectors and industry segment. Which sector? It is manufacturing, fulfillment, warehousing or distribution? And within those sectors, which segment? Is it within the automotive, consumer goods, construction or electronics industry to name a few?

This is important in pinpointing how the container will be implemented and used more thoroughly. More importantly, it gives insight into work conditions and environment.



Containers used in controlled environments do not necessarily have to be painted. Image courtesy of Topper Industrial.

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TYPE OF PARTS AND PART SIZE ARE A KEY FACTOR

What will be put into these boxes? Bulk steel containers can hold anything from metal shavings to plastic parts and beyond. Knowing the contents is key in determining what type of box construction is needed.

The overall function of a steel box is to hold material. What is sometimes overlooked is that it is designed for it. To create a functioning box, it must know what will be held inside and why. It is also important to know the size of each part and how it will take up space. Is there a specific stacking pattern or will the handler throw components in, and they land as they will and pile up?

Additionally, will the container be solely carrying materials, be part of the assembly process, or solely storing product?

OPTIONS ARE IMPORTANT

Though a container construction is a simple base with four walls, there are several options that can be considered.

Paint or no paint.

Most facilities use the containers indoors and outdoors, so they require some protection from the elements. In this circumstance, paint is a good option.

In some facilities, customers have visual cues and color code the containers depending on their use. Sometimes the color of the box will indicate what can or cannot go in them.

Similarly, some customers use the containers only in a controlled environment and paint is not necessary because they do not mind rusting. Another instance when paint is not always warranted is when a customer worries about contamination. They will elect not to paint the box or often they will just paint the outside of the container.

Also, important to mention, if a customer is putting hot parts in the container, it will eventually bake the paint off.

Drop Gate Option.

A drop gate is a nice option to have. Consider the placement of the container and the handlers point of reach. If the container is too high, whether by design or if it is placed on a stand, then the drop gate allows you to open the gate and access the inside with a little more ease.

Fixed Hopper Front.

A fixed hopper front is a protruding nose with an opening that allows for visibility. The handler can see the contents better. It also serves for easy picking of parts when multiple containers are stacked on top of one another.



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Lifting Lugs.

Lifting lugs are used a lot on jobsites specifically when debris, parts or supplies must be craned into the area from above or pulled out of certain areas or higher levels that a forklift or similar vehicle does not have access to.

This is also true when containers are used in shops to get parts around that have areas where forklifts do not have access to or not allowed to operate in.

Fork Tubes or Fork Stirrups.

Fork stirrups and fork tubes are similar in function but will vary in price. Either option can be added as two-way entry or four-way entry in picking up a container using the forks of a forklift. Fork stirrups only extend into the container depending on the width of the bar stock (normally 2" to 3") and the fork tubes extend the entire length of the container.

Both fork stirrups and fork tubes are used for stabilization of the container and dumping the contents from the container.

Angle Runner as an option.

Angle runners are an option for when containers are placed in pallet racking that either has no decking or when it has wire decking. It is also useful when containers are being

used on a conveyor. The angle runners are positioned at the base of the legs running front to back. **WMHS**



Jillian Burrow is the Marketing Manager at Topper Industrial (www.topperindustrial.com), which specializes in the design, construction and implementation of material handling carts and all line-side equipment, including steel containers (www.toppercontainers.com). Burrow has been with the company since 2006 and oversees all marketing and public relations, as well as manages the company editorial and blog site, www.forktruckfree.com.



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Top OSHA Workplace Violations



Fall Protection—General Requirements - Regulation 29 CFR 1926.501

Ranking: 1

A Workplace Story

From a National Institute for Occupational Safety and Health (NIOSH) Fatality Assessment and Control Evaluation (FACE) report:

On a hot April day in North Carolina, a crew was installing sheets of plywood and roof trusses on a residential roof. One of them, a 22-year-old Hispanic worker, was temporarily out of sight of his co-workers when they heard his body hit the ground. He'd fallen 41 feet from an unprotected edge onto the concrete driveway below. He died instantly. It was his second day on the job.

Investigators found that none of the crew had done roofing work prior to that day. They were not provided with fall-protection systems or with personal fall-arrest systems. They received no training in the recognition and avoidance of fall hazards prior to beginning the roof work.

The investigation also revealed that neither the site supervisor nor the company's vice president were aware of the existence of a company safety and health program.

The home office eventually located a "Guide for Employees" that listed 19 safety-related guidelines for employees of the company, and stated that "no one is allowed on a roof without OSHA-approved safety equipment." However, there was no information about safety equipment, including how fall protection on roofs was to be addressed. The employer did not have a written safety and health program onsite.

The Numbers

Enforcement from October 2019 through September 2020

Total citations 4,602
Total inspections: 4,487
Total proposed penalties: \$24,977,808

Industries most often violating the Fall Protection—General Requirements standard:

Construction: \$24,556,434
Wholesale Trade: \$158,842
Administrative and Support and Waste Management and Remediation Services: \$62,151
Manufacturing (part 3 of 3): \$37,370
Utilities: \$83,100
Real Estate and Rental and Leasing: \$24,941
Professional, Scientific, and Technical Services: \$12,158

Retail Trade (part 1 of 2): \$27,952
Agriculture, Forestry, Fishing and Hunting: \$6,747
Retail Trade (part 2 of 2): \$6,293

Prevention

There are a number of ways employers can protect workers from falls, including through the use of conventional means such as guard-rail systems, safety net systems and personal fall protection systems, the adoption of safe work practices, and the provision of appropriate training. The use of warning lines, designated areas, control zones and similar systems are permitted by OSHA in some situations and can provide protection by limiting



Guardrail systems, safety net systems and personal fall protection systems help prevent workplace falls, along with safe workplace practices and fall prevention training. © tosspra - stock.adobe.com

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Top OSHA Workplace Violations

the number of workers exposed. Whether conducting a hazard assessment or developing a comprehensive fall protection plan, thinking about fall hazards before the work begins will help the employer to manage fall hazards and focus attention on prevention efforts. If personal fall protection systems are used, particular attention should be given to identifying attachment points and to ensuring that employees know how to properly use and inspect the equipment.

Compliance

To comply with 1926.501 and prevent employees being injured or killed in falls, employers must:

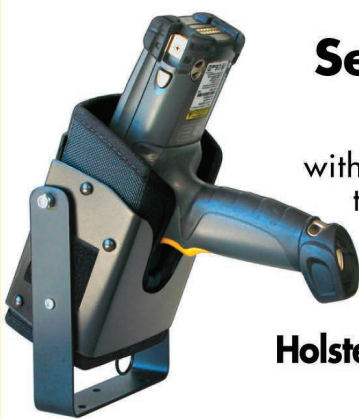
Provide adequate fall protection to employees who are exposed to fall hazards. According to 29 CFR 1926.501 (b)(1), each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet (1.8m) or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest systems.

Develop, implement, and enforce a written, comprehensive safety program. 29 CFR 1926 (20)(b) (1),(2) holds employers responsible for developing safety programs that are designed to prevent worker injury. These safety programs are to provide for frequent and regular inspections of the jobsites, materials and equipment. They are to be done by a competent person designated by the employer. The evaluation of tasks to be performed at the worksite forms the basis for development, implementation and enforcement of a safety program. Key elements of such a program should include, at a minimum, frequent and regular inspections by a competent person and should include provisions for training employees in hazard identification, avoidance and abatement.

Provide training to workers in the recognition and avoidance of unsafe conditions and the required safe work practices that apply to their normal and to any new work environments. 29 CFR 1926 (21) (b)(2) requires employers to instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to the work environment to control or eliminate any hazards or other exposure to injury or illness. Whenever employees are asked to perform new tasks, employers should provide them with the training they need to perform the job safely. In this incident, the victim and his crew members were assigned to new tasks, roofing work, without the benefit of training in how to recognize and avoid fall hazards. Employers should refer to OSHA regulation CFR 1926.503 (a) for specific training requirements. If training cannot be provided prior to the start of work, the work should be delayed until the training can be provided or until a trained crew is available.

Ensure that workers who are part of a multilingual workforce comprehend instructions in safe work procedures for the tasks to which they are assigned. Companies that employ workers who do not understand English should identify the languages spoken by their employees, and design, implement and enforce a multi-language safety program. The program, in addition to being multi-language, should include a competent interpreter to explain worker rights to protection in the workplace, safe work practices workers are expected to adhere to, specific safety protection for all tasks assigned, ways to identify and avoid hazards, and who they should contact when safety and health issues arise. Also, the employer should develop, and post in conspicuous places, safety posters/signs in that/those languages. **WMHS**

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Top OSHA Workplace Violations



Hazard Communication Standard, General Industry - Regulation 29 CFR 1910.120

Ranking: 2

A Workplace Story

From a California FACE report:

A 23-year-old associate working in a university research laboratory used a syringe and needle to extract a pyrophoric chemical (t-butyl lithium) from a bottle. When the plunger came out of the syringe barrel, the t-butyl lithium – which was an air-sensitive reagent - ignited on contact with room air. The chemical splashed onto the victim's clothing and set them on fire. (She was not wearing a laboratory coat at the time of the incident.) She died of the burn injuries she sustained.

The victim had been employed with the university for eleven weeks when the incident occurred. The employer had a written Injury and Illness Prevention Program (IIPP) and laboratory safety manual that required each research laboratory to have a written safe operating procedure (SOP) for the use of each hazardous chemical or substance. The principal investigator for each laboratory was responsible for preparing the SOP and training their employees and research staff on the safe handling of chemicals,

including air-sensitive reagents such as t-butyl lithium. Although the principal investigator of the lab where the victim had worked said she'd received verbal instruction on the safe use of pyrophoric chemicals, there was no written documentation of her receiving any laboratory safety training.

The Numbers

Enforcement from October 2019 through September 2020

Total citations: 49

Total inspections: 24

Total proposed penalties: \$174,174

Industries most often violating the hazard communication standard:

Manufacturing (part 2 of 3): \$45,665

Transportation and Warehousing (1 of 2): \$10,410

Manufacturing (part 1 of 3): \$31,830

Accommodation and Food Services: \$25,200

Public Administration: \$19,506

Manufacturing (part 3 of 3): \$9,516
Transportation and Warehousing (2 of 2): \$10,311

Health Care and Social Assistance: \$5,205

Retail Trade (part 2 of 2): \$9,639

Wholesale Trade: \$4,000

Prevention

Controlling exposures to chemical hazards and toxic substances is the fundamental method of protecting workers. A hierarchy of controls is used as a means of determining how to implement feasible and effective controls.

OSHA's longstanding policy is that engineering and work practice controls must be the primary means used to reduce employee exposure to toxic chemicals, as far as feasible, and that respiratory protection is required to be used when engineering or work practice controls are infeasible or while they are being implemented.

Eliminating toxic substances or substituting safer alternatives for them is one recommendation from OSHA.

Engineering controls include:

- Change process to minimize contact with hazardous chemicals
- Isolate or enclose the process
- Use of wet methods to reduce generation of dusts or other particulates
- General dilution ventilation
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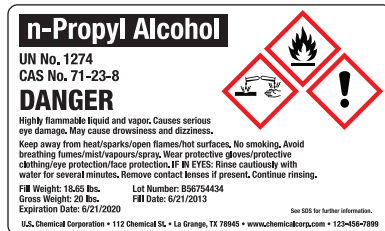


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Top OSHA Workplace Violations

Administrative and workplace controls include:

- Rotate job assignments
- Adjust work schedules so that workers are not overexposed to a hazardous chemical

Personal protective equipment (PPE) may include:

- Chemical protective clothing
- Respiratory protection
- Chemical resistant gloves
- Eye protection

Compliance

Under OSHA's Hazard Communication Standard (HCS), chemical manufacturers, distributors and importers must provide Safety Data Sheets (SDSs) for each hazardous chemical to downstream users to communicate information on these hazards. The information contained in the SDS is required to be presented in a consistent user-friendly, 16-section format. It should include the properties of each chemical; the physical, health and environmental health hazards; protective measures; and safety precautions for handling, storing and transporting the chemical. It must be in English (although it can be in other languages as well).

Employers that have hazardous chemicals in their workplaces are required by OSHA's Hazard Communication Standard (HCS), 29 CFR 1910.1200, to implement a hazard communication program. The program must include labels on containers of hazardous chemicals, safety data sheets (SDSs) for hazardous chemicals, and training for workers. Each employer must also describe in a written program how it will meet the requirements of the HCS in each of these areas.

Employers can implement an effective hazard communication program by following these six steps:

Step 1. Learn the Standard/Identify Responsible Staff

- Obtain a copy of OSHA's Hazard Communication Standard.
- Become familiar with its provisions.
- Make sure that someone has primary responsibility for coordinating implementation.
- Identify staff for particular activities (e.g., training).

Step 2. Prepare and Implement a Written Hazard Communication Program

- Prepare a written plan to indicate how hazard communication will be addressed in your facility.
- Prepare a list or inventory of all hazardous chemicals in the workplace.

Step 3. Ensure Containers are Labeled

- Keep labels on shipped containers.
- Label workplace containers where required.

Step 4. Maintain Safety Data Sheets (SDSs)

- Maintain safety data sheets for each hazardous chemical in the workplace.
- Ensure that safety data sheets are readily accessible to employees.

Step 5. Inform and Train Employees

- Train employees on the hazardous chemicals in their work area before initial assignment, and when new hazards are introduced.
- Include the requirements of the standard, hazards of chemicals, appropriate protective measures and where and how to obtain additional information.

Step 6. Evaluate and Reassess Your Program

- Review your hazard communication program periodically to make sure that it is still working and meeting its objectives.
- Revise your program as appropriate to address changed conditions in the workplace (e.g., new chemicals, new hazards, etc.). **WMHS**



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Top OSHA Workplace Violations



Respiratory Protection, General Industry - Regulation 29 CFR 1910.134

Ranking: 3

A Workplace Story

A California Fatality Assessment and Control Evaluation (CA/FACE) Program report:

A bathtub refinisher, working alone in a small apartment bathroom, died of methylene chloride exposure while using the chemical to remove paint from a bathtub. The victim was not wearing any respiratory protection. The bathroom had a small, open window but no mechanical ventilation. The victim was the sole employee of a company that specialized in refinishing bathtubs and sinks.

In response to the incident, the CA/FACE Program recommends that safer paint removal products be used, but if a methylene chloride-containing paint remover is used, it should only be done in a well-ventilated bathroom, by someone wearing polyvinyl alcohol (PVA) or Silvershield® gloves and an airline respirator.

The Numbers

Enforcement from October 2019 through September 2020

Total citations: 2,757

Total inspections: 1,150

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Total proposed penalties: \$4,887,192

Industries most often violating the respiratory protection standard:

Health Care and Social Assistance: \$2,730,216
Manufacturing (part 3 of 3): \$577,613
Construction: \$391,025
Manufacturing (part 2 of 3): \$330,312
Other Services (except Public Administration): \$123,753
Wholesale Trade: \$90,813
Administrative and Support and Waste Management and Remediation Services: \$180,433
Manufacturing (part 1 of 3): \$121,295
Retail Trade (part 1 of 2): \$51,379
Transportation and Warehousing (1 of 2): \$60,498

Prevention

Respiratory hazards are due to exposure to substances hazardous to health which are small enough to be inhaled or breathed in, such as dust, fumes, spores or bacteria, gases or oxygen-deficient atmospheres. More than one respiratory hazard can be present at the same time. Sometimes, substances absorbed through the skin can also be hazardous to the respiratory system. Some examples of occupational lung diseases are:

- Asbestosis. This condition is caused when a person breathes in tiny asbestos fibers.

- Coal worker's pneumoconiosis or black lung disease. This is caused by inhaling coal dust.
- Silicosis, which is caused by breathing in airborne crystalline silica.
- Byssinosis, caused by breathing in dust from hemp, flax and cotton processing. It is also known as Brown Lung Disease.
- Hypersensitivity pneumonitis, an allergic lung disease caused by a lung inflammation that happens from breathing in fungus spores, bacteria, animal or plant protein, or certain chemicals. They can come from moldy hay, bird droppings and other organic dusts.
- Work-related asthma, caused by breathing in dusts, gases, fumes and vapors. It causes asthma symptoms such as a chronic cough and wheezing.

The types of devices used to protect workers from respiratory hazards include:



Employers must provide respirators to protect workers exposed to inhalation hazards when exposure cannot be controlled by engineering or administrative controls.
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Top OSHA Workplace Violations

- Elastomeric Half Facepiece Respirators are usable and have replaceable cartridges or filters. They cover the nose and mouth and provide protection against gases, vapors or particles when equipped with the appropriate cartridge or filter.
- Elastomeric Full Facepiece Respirators are reusable and have replaceable canisters, cartridges or filters. The facepiece covers the face and eyes, which offers eye protection.
- Filtering Facepiece Respirators are disposable half-facepiece respirators that filter out particles such as dusts, mists and fumes. They do NOT provide protection against gases and vapors.
- Powered Air-Purifying Respirators (PAPRs) have a battery-powered blower that pulls air through attached filters, canisters, or cartridges. They provide protection against gases, vapors or particles when equipped with the appropriate cartridge, canister or filter. Loose-fitting PAPRs do not require fit testing and can be used with facial hair.
- Supplied-Air Respirators are connected to a separate source that supplies clean, compressed air through a hose. They can be lightweight and used while working for long hours in environments not immediately dangerous to life and health (IDLH).
- Self-Contained Breathing Apparatus (SCBAs) are used for entry into or escape from environments considered to be IDLH. They contain their own breathing air supply and can be either open circuit or closed circuit.
- Combination Respirators can be either a supplied-air/SCBA respirator or supplied-air/air-purifying respirator. The SCBA type has a self-contained air supply if primary airline fails and can be used in IDLH environments. The air-purifying type offers protection using both a supplied-air hose and an air-purifying component and cannot be used for entry into IDLH environments.

Compliance

OSHA requires that each employer must provide respirators to protect workers from workplace hazards during work to prevent inhalation of hazardous materials that cannot be controlled by other measures (i.e., engineering or administrative controls). The employer must establish and maintain a respiratory protection program, which is compliant with the OSHA respiratory protection standard and provides respirators suitable for their intended purpose.

A respiratory protection program must include a written plan detailing how the program will be administered. In addition to having a written program, the employer must also be able to demonstrate that the

program is enforced and updated as necessary. The written program should include:

- Procedure for selecting respirators for use in the workplace
- Medical evaluation of employees required to wear respirators
- Fit testing procedures for tight fitting respirators
- Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing and discarding, and otherwise maintaining respirators
- Procedure to ensure adequate quality, quantity, and flow of breathing air for atmosphere-supplying air respirators
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use and their maintenance
- Procedures for regularly evaluating the effectiveness of the program
- Procedures for ensuring that workers who voluntarily wear respirators (excluding filtering facepieces) comply with the medical evaluation, and cleaning, storing and maintenance requirements of the standard. **WMHS**



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Top OSHA Workplace Violations



Scaffolding, General Requirements, Construction - Regulation 29 CFR 1926.451

Ranking: 4

A Workplace Story

From a Wisconsin FACE report:

A 59-year-old male plaster laborer in Wisconsin died after falling from a scaffold and striking his head on asphalt pavement. The victim and a co-worker had erected the welded tubular scaffolding on the outside wall of a single-story building and planned to bring the railings and access ladder to the worksite the next day. Near the end of the workday, the victim returned extra tools and equipment to the supply truck, removed his safety helmet and returned to the scaffold area. The co-worker was positioned on the top of the unguarded scaffold and heard a clanging sound on the bracing. He turned to see the victim lying on the ground. The victim was transported to a nearby hospital, where he died 6 hours later of head injuries.

The FACE investigator concluded that, to prevent similar occurrences, employers should ensure that safe access is provided to the work platforms of all scaffolds and that adequate fall protection is used by workers on scaffolds. The company's safety program included a written general safety policy, periodic worksite visits and weekly toolbox safety meetings. Task-specific safety procedures, including working on scaffolds, were unwritten but were communicated verbally to employees. Records had been maintained of employee participation at the safety meetings for over two years, and there was no record that the victim had attended any safety talks related

to fall prevention or scaffold safety during that time.

The victim had been employed by the company for 14 years and had worked on scaffolds frequently. The company provided on-the-job training to employees, including training on appropriate use of personal protective equipment. This was the company's first fatality.

The Numbers

Enforcement from October 2019 through September 2020

Total citations: 1,939
Total inspections: 948
Total proposed penalties: \$5,755,397

Industries most often violating the scaffolding in construction standard:

Construction: \$5,564,215
Administrative and Support and Waste Management and Remediation Services: \$23,337
Accommodation and Food Services: \$66,044
Manufacturing (part 3 of 3): \$16,834
Public Administration: \$0
Manufacturing (part 2 of 3): \$12,145
Professional, Scientific, and Technical Services: \$7,602
Real Estate and Rental and Leasing: \$6,091
Transportation and Warehousing (2 of 2): \$26,988
Arts, Entertainment, and Recreation: \$3,239

Prevention

Workers using scaffolds may be injured due to:

- Tip-overs

- Electric shocks
- Structural failures (collapse)
- Falls

Only trained and authorized persons should be allowed to use a scaffold. Training requirements:

- All training must be conducted in a manner and language which the worker is able to understand.
- Training must be provided by a qualified person who recognizes the hazards associated with the type of scaffold being used and who understands the procedures to control or minimize those hazards. Training must include how to safely:
 - Use the scaffold and determine the maximum load limits when handling materials.
 - Recognize and avoid scaffolding hazards such as electric shock, falls from heights and being hit by falling objects.
 - Erect, inspect, move, operate, maintain and repair scaffolds.

Compliance

Employers must ensure the following:

- Follow the manufacturer's allowable load for the casters, scaffold components and platforms, along with recommended bracing to ensure a rigid and structurally sound scaffold.
- Assess the work area, site conditions and work to be performed.
- Conduct a pre-operation inspection to verify

Top OSHA Workplace Violations

that all scaffold components are functioning properly and/or are correctly assembled.

- Keep the platform free from tripping hazards such as hand tools, equipment or materials.
- Lock scaffold wheels with positive wheel and/or wheel and swivel locks to prevent movement while in use.
- Use guardrails which include top rails, midrails and toe boards, or fall protection at working platform heights of 10 feet or higher.
- Stay at least 10 feet away from energized power lines.
- If outriggers are installed, deploy installed outriggers on both sides of the scaffold. All locking pins must be engaged before using the scaffold.

Employers must ensure that workers have been effectively trained in the following:

- Not to stand on the guardrail or use any components of the scaffold or other items (e.g., stepladders, buckets, boxes, barrels, etc.) inside the scaffold to gain additional standing height.
- Not to try to pull yourself from one location to another while standing on the platform.
- Not to use a scaffold if it is incomplete, broken or has missing or ill-fitting parts which need replacement. Contact your employer immediately.

- Not to move the scaffold with worker(s) on the scaffold when:
 - The worker(s) on the scaffold is unaware of the move and/or the surface under the scaffold is not within 3 degrees of level and free of pits, holes or obstructions.
 - The worker is on any part of the scaffold which extends outward beyond the wheels, casters, or other supports.
 - Manual force is not being applied as close to the base as practicable. Manual force must be applied not more than 5 feet above the supporting surface (1926.452(w)(3)).
 - The height to base width ratio of the scaffold during movement is greater than 2 to 1, unless the scaffold is designed and constructed to meet or exceed nationally recognized stability test requirements (such as ANSI/ SIA A92.5 and A92.6) (1926.452(w)(6)(ii)).

Employers must retrain employees when inadequacies are observed, changes in worksite conditions occur or when it is believed that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of the scaffold. **WMHS**

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Top OSHA Workplace Violations



Ladders, Construction - Regulation 29 CFR 1926.1053

Ranking: 5

A Workplace Story

From a California FACE report:

It was raining and the steps of an 8-foot-straight ladder that was leaning against a 3-tiered storage shelf unit at a grocery market were slippery. The 72-year-old part-time grocery worker who was on the ladder on that January morning fell backward off it and landed on the concrete surface below. Co-workers helped him to his car, but when he subsequently lost consciousness, called 911. He was transported by ambulance to a local hospital where he died from his injuries 20 days later.

The employer, a small, independent grocery store, did not have a written injury and illness prevention program (IIPP) and did not safety meetings. Training was typically accomplished by on-the-job-training (OJT) - observing other workers perform their work tasks. There was no specific training on the safe use of ladders. The victim had no known underlying health conditions. He'd worked part-time at the market for several years, mostly driving a delivery truck and, when needed, stocking and removing supplies from the store shelves.

The CA/FACE investigator determined that, in order to prevent similar future incidents, grocery markets should:

- Establish and enforce a safety training program that includes the hazards of climbing ladders. If ladders are used in wet conditions, safety precautions should be taken.

- Have older employees who work on ladders assessed for increased fall risk by a healthcare provider.

The Numbers

Enforcement from October 2019 through September 2020

Total citations: 1,821

Total inspections: 1,026

Total proposed penalties:

\$11,962,667

Most Frequently Violated OSHA Standard Ranking – Number 6

Industries most often violating the ladders in construction standard:

Manufacturing (part 3 of 3):

\$2,767,636

Manufacturing (part 2 of 3):

\$3,524,980

Manufacturing (part 1 of 3):

\$3,329,338

Wholesale Trade: \$834,267

Administrative and Support

and Waste Management and

Remediation Services: \$357,927

Other Services (except Public

Administration): \$244,676

Transportation and Warehousing

(2 of 2): \$211,054

Construction: \$123,625

Retail Trade (part 1 of 2): \$148,410

Accommodation and Food

Services: \$68,759

Prevention

Falls are the leading cause of death in construction and every year falls from ladders make up nearly a third of those deaths. These deaths are preventable. Falls from ladders can be prevented and lives can be saved by following safe work practices.

When you want to reach a higher work area, a ladder or stepladder

may not always be the best option. Ask these questions before deciding on a ladder:

- Will the user have to hold heavy items while on the ladder?
- Is the elevated area high enough that it would require a long ladder that can be unstable?
- Will they be working from this height for a long time?
- Will they have to stand on the ladder sideways in order to do this work?

If your answer is yes to one of the above questions, consider using something other than a ladder. If possible, bring in other equipment like a scissor lift. If a ladder must be used, use one that has a working platform with handrail barricades on the sides (e.g., a platform stepladder).

Additionally:

- Use the right ladder for the job. For example, ensure the ladder is high enough for you to reach your work area without having to stand on the top rung.
- When using ladders to access another level, secure and extend the ladder at least 3 feet above the landing point to provide a safe handhold.
- The base of the ladder should be secured.
- Wear proper footwear (e.g., non-slip flat shoes).
- Place the ladder on stable and level ground. DO NOT place it on an uneven surface.
- Ensure that the ladder is fully extended before starting work.
- Prevent passersby from walking under or near ladders in use by using barriers (e.g., cones) or getting

Top OSHA Workplace Violations

your coworker to act as a lookout.

- Do not work on the top rung of the ladder.
- Maintain three points of contact with the ladder at all times.

Compliance

Among the requirements of OSHA's ladder standard:

- The top or top step of a stepladder shall not be used as a step.
- Ladders shall be used only for the purpose for which they were designed.
- Portable/fixed ladders with structural defects shall either be immediately marked in a manner that readily identifies them as defective, or be tagged with "Do Not Use" or similar language. Defective portable/fixed ladders shall be withdrawn from service until repaired.
- Ladders shall be maintained free of oil, greas and other slipping hazards.
- Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any situation that could affect their safe use.
- Ladder repairs shall restore the ladder to a condition meeting its original design criteria before the ladder is returned to use.
- Ladders must not be loaded beyond the maximum intended load for which they were built, nor beyond their manufacturer's rated capacity.
- The top or top step of a stepladder shall not be used as a step.
- Do not tie or fasten together ladders to create longer sections unless the ladders are specifically designed for such use.
- Ladders shall be used only on stable and level surfaces unless they are secured to prevent accidental displacement.
- Ladders shall not be moved, shifted or extended while occupied.
- Each employee shall use at least one hand to grasp the ladder when progressing up and/or down the ladder.
- An employee shall not carry any object or load that could cause the employee to lose balance and fall.
- When portable ladders are used for access to an upper landing surface, the ladder side rails shall extend at least 3 feet (.9 m) above the upper landing surface to which the ladder is used to gain access; or, when such an extension is not possible because of the ladder's length, then the ladder shall be secured at its top to a rigid support that will not deflect, and a grasping device, such as a grab rail, shall be provided to assist employees in mounting and dismounting the ladder. **WMHS**

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Top OSHA Workplace Violations



Control of Hazardous Energy (Lockout/Tagout), General Industry - Regulation 29 CFR 1910.147

Ranking: 6

A Workplace Story

From an Oregon Fatality Assessment and Control Evaluation (OR-FACE) report:

Although there was no one nearby to witness what happened when a 23-year-old rubber cutter's head was caught between bars of operating machinery, circumstances suggested that he entered a festoon rubber processing area to retrieve and redirect a rubber strip on a cooling bar that had passed the point where it should have fed onto a conveyor. It is believed that the worker raised his head between the moving cooling bars, and that the bars then forced his head against a structural support for an electrical panel. He was pronounced dead at the scene.

OR-FACE investigators found the following key contributing factors:

- Inadequate equipment safeguard
- Inadequate lockout/tagout program and training
- Inadequate hazard assessment and knowledge of safeguarding equipment
- Inadequate training and assessing workplace hazards

They concluded that to help prevent similar occurrences, employers should:

- Safeguard machinery to protect machine operators and others who work in the area from hazards.
- Implement, enforce, and assess "control of hazardous energy (lockout/tagout)" procedures for machines, equipment and processes where unexpected energization or start-up could cause harm to personnel.

The Numbers

Enforcement from October 2019 through September 2020

Total citations: 1,821

Total inspections: 1,026

Total proposed penalties:

\$11,962,667

Industries most often violating LOTO standard:

Manufacturing (part 3 of 3): \$2,767,636

Manufacturing (part 2 of 3): \$3,524,980

Manufacturing (part 1 of 3): \$3,329,338

Wholesale Trade: \$834,267

Administrative and Support and Waste Management and Remediation Services: \$357,927

Other Services (except Public Administration): \$244,676

Transportation and Warehousing (2 of 2): \$211,054

Construction: \$123,625

Retail Trade (part 1 of 2): \$148,410

Accommodation and Food Services: \$68,759

Prevention

The Lockout/Tagout Standard helps protect workers from hazardous

energy while they are performing service or maintenance on machine and equipment. This rule requires, in general, that before machinery or equipment is serviced, it must be turned off and disconnected from the energy source and locked or tagged out. Covered workplaces must develop a written energy control program and put it to use. If your employees service or maintain machines where the unexpected startup, energization or the release of stored energy could cause injury, the standard likely applies to you.

The standard applies to all sources of energy, including, but not limited to mechanical, electrical, hydraulic, pneumatic, chemical and thermal energy. The standard does not cover the agriculture, construction and maritime industries or oil and gas well drilling and servicing.

Compliance

A hazardous energy control program should include:

- A designated program coordinator
- Hazardous energy control training for employees. Training in lockout will be given to all new employees as a part of their orientation. Retraining will be conducted whenever there is a change in job assignment, a change in machinery or equipment or process change that presents a new hazard.
- Training records of employees will be maintained by the program coordinator.
- The coordinator will also maintain a listing of all equipment and machines that fall under the hazardous energy control program

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Top OSHA Workplace Violations

- An adequate supply of lockout devices (padlocks) and DANGER tags for use each time a lockout process is performed. These shall be used only for energy control. Prior to the servicing or maintenance of equipment a padlock and DANGER warning tag will be obtained from the Program Coordinator. Each padlock will be keyed differently with no master key or duplicate keys available.
- All equipment must be locked out to protect against accidental or inadvertent operation, when operation could cause injury to personnel. Locks are to be applied and removed only by the authorized employee who is performing the servicing or maintenance.
- No one should attempt to operate locked-out equipment.
- Disciplinary action will be applied if any employee violates these procedures, regardless of whether or not physical harm or equipment damage results.
- At least annually, the Program Coordinator will verify the effectiveness of the energy control procedures.

Specific procedures will be followed for lockout:

- If the machine/equipment is in operation, shut it down by the normal shutdown procedure.

- Operate the appropriate switch, valve, etc., so that the machine/equipment is isolated from the energy source.
- Lock the energy isolating devices, using assigned locks and danger tags.
- Release, restrain or dissipate any stored energy.
- Verify that energy isolation is complete, by attempting to start the affected machinery or equipment in the normal manner.
- After testing, return all operation controls to the “neutral” or “off” positions.

Restoration to normal:

- After service or maintenance is complete, check the area to ensure that no employees are exposed.
- Remove all tools and repair equipment.
- Ensure that all guards have been replaced and all safety interlocks reactivated (if so equipped).
- Verify that the operating controls are in the “off” or neutral position.
- Remove all lockout and tag devices and activate the energy isolation devices to restore energy. **WMHS**

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Top OSHA Workplace Violations



Powered Industrial Trucks, General Industry - Regulation 29 CFR 1910.178

Ranking: 7

A Workplace Story

From a NIOSH In-house FACE Report:

A 16-year-old part-time worker died when the forklift he was operating tipped over during a turn occurring as the truck was going from a paved alley onto a gravel surface. The worker, who was not wearing the forklift's seat belt, either jumped or was thrown from the operator's seat and was pinned to the ground by the overhead guard. He was transported to a local hospital, where he was pronounced dead.

An investigation determined that the company had an unwritten safety policy and that orientations for newly hired employees included training in the company's hazard communication program, company history, general safety rules, use of protective equipment and procedures for reporting unsafe conditions and injuries. The victim had been hired 6 weeks before the incident to work part-time after school hours. He had received orientation on his first day of work, along with a hard hat and safety glasses. Although he was not assigned to operate the forklift, he had used it occasionally within the warehouse to move materials while cleaning. This was the company's first fatality.

NIOSH investigators concluded that, to help prevent similar occurrences, employers should ensure that:

- forklifts are operated only by employees trained to use safe operating procedures
- seatbelts should be worn by operators of sit-down forklifts
- employers comply with child labor laws, which prohibit people under 18 years of age from operating powered industrial trucks.

The Numbers

Enforcement from October 2019 through September 2020

Total citations: 1,516

Total inspections: 1,037

Total proposed penalties: \$4,009,343

Industries most often violating the powered industrial trucks standard:

Manufacturing (part 3 of 3): \$721,508

Manufacturing (part 2 of 3): \$585,418

Wholesale Trade: \$541,125

Construction: \$541,125

Transportation and Warehousing (2 of 2): \$493,593

Retail Trade (part 1 of 2): \$277,339

Transportation and Warehousing (1 of 2): \$235,654

Manufacturing (part 1 of 3): \$219,964

Retail Trade (part 2 of 2): \$84,233



Administrative and Support and Waste Management and Remediation Services: \$183,128
Other Services (except Public Administration): \$31,631

Prevention

The hazards commonly associated with powered industrial trucks vary depending on the vehicle type and the workplace where the truck is used. Each type of truck presents different operating hazards. For example, a sit-down, counterbalanced high lift rider truck is more likely than a motorized hand truck to be involved in a falling load accident, because the sit-down rider truck can lift a load much higher than a hand truck. Workplace conditions also present different hazards. For example, retail establishments often face greater challenges than other worksites in maintaining pedestrian safety.

The best way to protect employees from injury also depends on the type of truck operated and worksite where it is being used.

Determining the best way to protect workers from injury largely depends on the type of truck operated and the worksite where it is being used. Employers must ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in 29 CFR 1910.178(l)(1).

In terms of forklifts, safely operating the vehicles requires preparation, anticipation and

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Top OSHA Workplace Violations

careful attention in order to maintain control of the vehicle at all times.

Pre-operation safety: Inspect and maintain the forklift before use. A vehicle that is in need of repair, defective or in any way unsafe should be removed from service. The problem should be recorded on a log and reported to a supervisor immediately.

Traveling and maneuvering: Use good operating practices to prevent accidents. Operators must always maintain control of the forklift, keep a proper lookout and operate the forklift at speeds safe for the particular operation and worksite conditions.

Load handling: Identify the hazards and recommended practices for each step in the load handling process, including:

- Load composition
- Safe handling preparation
- Approaching
- Mast position
- Fork position
- Lifting the load
- Lowering the load

- High tiering
- Truck trailers and railroad cars

Compliance

Among the requirements of the powered industrial truck standard:

- All new powered industrial trucks acquired and used by an employer shall meet the design and construction requirements for powered industrial trucks established in the “American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969,” which is incorporated by reference as specified in §1910.6, except for vehicles intended primarily for earth moving or over-the-road hauling.
- Approved trucks shall bear a label or some other identifying mark indicating approval by the testing laboratory. See paragraph (a)(7) of this section and paragraph 405 of “American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1-1969”, which is incorporated by reference in paragraph (a)(2) of this section and which provides that if the powered industrial truck is accepted by a nationally recognized testing laboratory it should be so marked.
- Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturers prior written approval. Capacity, operation and maintenance instruction plates, tags or decals shall be changed accordingly.
- The atmosphere or location shall have been classified as to whether it is hazardous or nonhazardous prior to the consideration of industrial trucks being used therein and the type of industrial truck required shall be as provided in paragraph (d) of this section for such location.
- Power-operated industrial trucks shall not be used in atmospheres containing hazardous concentrations of metal dust, including aluminum, magnesium and their commercial alloys, other metals of similarly hazardous characteristics, or in atmospheres containing carbon black, coal or coke dust except approved power-operated industrial trucks designated as EX may be used in such atmospheres.
- In atmospheres where dust of magnesium, aluminum or aluminum bronze may be present, fuses, switches, motor controllers and circuit breakers of trucks shall have enclosures specifically approved for such locations.
- The employer shall ensure that each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of the training and evaluation specified in this paragraph (l). **WMHS**



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Top OSHA Workplace Violations



Fall Protection Training Requirements, Construction - Regulation 29 CFR 1926.503

Ranking: 8

A Workplace Story

From a Massachusetts FACE Occupational Fatality Report:

Three hours into his shift on a cold January day in Massachusetts, a laborer/carpenter lost his balance and fell 24 feet from an exterior second story wall to the frozen ground below. EMS and local police and state police arrived within minutes. The victim was med-flighted to a regional trauma center and died the next day in the intensive care unit. He was 22 years old.

An investigation by Massachusetts' FACE program found the employer – a residential contractor who'd been in business for about a year – did not provide fall protection to workers in the form of personal fall arrest systems (PFAS). The employer asked employees to use the PFAS, but did not enforce the use of fall protection. At the time of the incident, the company did not have a safety and health program or a safety and did not provide safety and health training or hold toolbox talks with employees.

The Numbers

Enforcement from October 2019 through September 2020

Total citations: 1,415
Total inspections: 1,376
Total proposed penalties: \$2,244,088

Industries most often violating fall protection

training requirements in construction standard:

Construction: \$2,195,356
Administrative and Support and Waste Management and Remediation Services: \$13,750
Wholesale Trade: \$9,784
Manufacturing (part 3 of 3): \$4,742
Real Estate and Rental and Leasing: \$1,278
Retail Trade (part 2 of 2): \$6,293
Information: \$3,441
Retail Trade (part 1 of 2): \$9,445
Mining, Quarrying, and Oil and Gas Extraction: \$0
Utilities: \$0

Protection

Preventing falls can mean the difference between life and death. Hundreds of workers die from falls each year. A fall can occur in a split second without any time for the worker to react. You can prevent such deaths by planning to get the job done safely, providing the right fall protection equipment and training all workers to use the equipment safely. Having a serious injury or death occur at work affects everyone at a worksite.

Short and direct Toolbox Talks can be a very efficient way to reach workers with health and safety information. Like all training, delivering the information effectively takes preparation and a desire to involve the workers in health and safety at the workplace. Employers may train workers to lead the training or have supervisors provide the training. Studies have shown peer-to-peer training is effective, participatory and well-retained.

Safety meetings work best if the whole crew actively participates. This makes it more interesting and more likely that people will remember the information you've given them. Here are some ways to encourage everyone to get involved:

- Ask questions instead of simply giving them the information. After you ask a question, wait a short time to let people think. Then, call on volunteers to answer.
- Ask about personal experience. This can help the group see how the topic is relevant to them. You could ask: Has anyone here fallen off a ladder? What happened?
- Make sure everyone has a chance to talk. If a crew member is talking too much, invite someone else to speak.
- Never make fun of anyone or put anyone down, especially for asking questions.

Compliance

- The employer shall provide a training program for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall train each employee in the procedures to be followed in order to minimize these hazards.
- The employer shall assure that each employee has been trained, as necessary, by a competent person qualified in the following areas:
 - The correct procedures for erecting, maintaining, disassembling and inspecting the fall protection systems to be used;
 - The use and operation of

Top OSHA Workplace Violations

guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones and other protection to be used;

- The role of each employee in the safety monitoring system when this system is used;
- The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs;
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection; and
- The role of employees in fall protection plans;



- The employer shall prepare a written certification record. The written certification record shall contain the name or other identity of the employee trained, the date(s) of the training, and the signature of the person who conducted the training or the signature of the employer. If the employer relies on training conducted by another employer or completed prior to the effective date of this section, the certification record shall indicate the date the employer determined the prior training was adequate rather than the date of actual training.
- When the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by paragraph (a) of this section, the employer shall retrain each such employee. Circumstances where retraining is required include, but are not limited to, situations where:
 - Changes in the workplace render previous training obsolete; or
 - Changes in the types of fall protection systems or equipment to be used render previous training
 - Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill. **WMHS**

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- Don't Rely on Cellular Service or Cell Phone Apps
- Don't Rely on the Internet or Website Monitoring
- Rugged and Intrinsically Safe for Harsh Environments
- Interface with SCADA and All Other Alarm Systems



Top OSHA Workplace Violations



Eye and Face Protection - Regulation 29 CFR 1926.102

Ranking: 9

A Workplace Story

Barry Weatherall did not wear personal protective equipment (PPE) while he prepared chemicals used for cleaning copper pipes. The plumbing and heating engineer added a neutralizing element to sulfuric acid and then left the immediate area to write a work procedure report while the chemicals neutralized. He removed his safety glasses, a face mask and gloves. When he returned to the work area ten minutes later, wearing only a paper dust mask, the chemicals exploded in his face, blinding him.

Weatherall – who asserted that he'd been given incorrect information from a chemical company about the potential risks of the substances he was working with – went through a difficult adjustment period after the incident. He subsequently devoted his time to traveling to industrial workplaces throughout Canada, conducting interactive workshops about the importance of on-the-job eye safety and the need to avoid the “it won't happen to me” attitude.

Sponsors:

Honeywell

<https://sps.honeywell.com/us/en/products/safety>

The Numbers

Enforcement from October 2019 through September 2020

Total citations: 1,201
Total inspections: 1,200
Total proposed penalties: \$4,056,031

Industries most often violating eye and face protection requirements:

Construction: \$4,023,139
Wholesale Trade: \$16,297
Administrative and Support and Waste Management and Remediation Services: \$7,470
Manufacturing (part 3 of 3): \$6,000
Professional, Scientific, and Technical Services: \$2,256
Manufacturing (part 2 of 3): \$869

Prevention

Thousands of people are blinded each year from work-related eye injuries that could have been prevented with the proper selection and use of eye and face protection. Many workers are unaware of the potential hazards in their work environments, making them more vulnerable to injury.

Eye injuries can be caused by:

- Flying wood or metal chips
- Splashes with grease and oil
- Burns from steam, ultraviolet or infrared radiation exposure
- Nails
- Welding fumes
- Solvent splashes
- Glass
- Wire

OSHA requires employers to ensure the safety of all employees in the work environment. Eye and face protection must be provided

whenever necessary to protect against chemical, environmental, radiological or mechanical irritants and hazards. It is designed to prevent or lessen the severity of injuries to workers. The eye protection chosen for specific work situations depends upon the nature and extent of the hazard, the circumstances of exposure, other protective equipment used and personal vision needs. Personal protective eyewear includes goggles, face shields, safety glasses or full-face respirators.

Eye protection should be fit to an individual or be adjustable to provide appropriate coverage. It should be comfortable and allow for sufficient peripheral vision. Employers should conduct a hazard assessment to determine the appropriate type of protective eyewear appropriate for the potential hazards of a given task.

Compliance

Among the key provisions of the eye and face protection standard:

- The employer shall ensure that each affected employee uses appropriate eye or face protection when exposed to eye or face hazards from flying particles, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors or potentially injurious light radiation.
- The employer shall ensure that each affected employee uses eye protection that provides side protection when there is a hazard from flying objects. Detachable side protectors

Top OSHA Workplace Violations

(e.g. clip-on or slide-on side shields) meeting the pertinent requirements of this section are acceptable.

- The employer shall ensure that each affected employee who wears prescription lenses while engaged in operations that involve eye hazards wears eye protection that incorporates the prescription in its design, or wears eye protection that can be worn over the prescription lenses without disturbing the proper position of the prescription lenses or the protective lenses.
- Eye and face PPE shall be distinctly marked to facilitate identification of the manufacturer.
- Protectors shall meet the following minimum requirements:
 - They shall provide adequate protection against the particular hazards for which they are designed.
 - They shall be reasonably comfortable when worn under the designated conditions.
 - They shall fit snugly and shall not unduly interfere with the movements of the wearer.
 - They shall be durable.
 - They shall be capable of being disinfected.
 - They shall be easily cleanable.
- Protective eye and face protection devices must comply with any of the following consensus standards:
 - ANSI/ISEA Z87.1-2010, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1926.6;
 - ANSI Z87.1-2003, Occupational and Educational Personal Eye and Face Protection Devices, incorporated by reference in § 1926.6; or
 - ANSI Z87.1-1989 (R-1998), Practice for Occupational and Educational Eye and Face Protection, incorporated by reference in § 1926.6;
- Protective eye and face protection devices that the employer demonstrates are at least as effective as protective eye and face protection devices that are constructed in accordance with one of the above consensus standards will be deemed to be in compliance with the requirements of this section.
- Protection against radiant energy in welding should follow OSHA's guides for the selection of the proper shade numbers of filter lenses or plates.
- Employees whose occupation or assignment requires exposure to laser beams shall be furnished suitable laser safety goggles which will protect for the specific wavelength of the laser and be of optical density (O.D.) adequate for the energy involved. **WMHS**

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Top OSHA Workplace Violations



Machinery & Machine Guarding, General Industry - Regulation 29 CFR 1910.212

Ranking: 10

A Workplace Story

From a California Case Report:

A 38-year-old machine operator was strangled when his shirt got caught on a rotating knob of a printing machine. The rotating knob did not have any guarding or protective barriers around it to prevent inadvertent contact. The victim had 14 years of prior experience operating similar machines and had received one-on-one training by an experienced machine operator. Although this incident was not witnessed, the victim was probably checking the status of the ink trays while the machine was running. He was able to reach the computer screen of the machine and shut the machine off, but unable to free himself from the rotating knobs.

The investigators recommended that, in order to prevent similar incidents, when employees work near moving machinery components, printing plant employers should ensure that safety features and appropriate guards are integral to printing machine design so that employees cannot become entangled and risk injury or death. In this instance, the

printing machine was not manufactured with guards over the rotating knobs, and there was no mechanism to ensure that the knobs stopped rotating when the employee checked the ink tray status.

The Numbers

Enforcement from October 2019 through September 2020:

Total citations: 1,092

Total inspections: 994

Total proposed penalties: \$7,442,593

Most Frequently Violated OSHA Standard Ranking-Number 9

Industries most often violating machine & machine guarding requirements in general industry:

Manufacturing (part 3 of 3):

\$3,060,650 in penalties

Manufacturing (part 2 of 3): \$1,820,387

Manufacturing (part 1 of 3): \$1,094,701

Wholesale Trade: \$400,405

Retail Trade (part 1 of 2): \$315,896

Administrative and Support

and Waste Management and

Remediation Services: \$139,558

Other Services (except Public

Administration): \$76,340

Public Administration: \$5,735

Transportation and Warehousing (2 of 2): \$137,753

Transportation and Warehousing (1 of 2): \$56,565

Prevention

Machines can help improve production efficiency in the workplace. However, their moving parts, sharp edges and hot surfaces can also

cause serious workplace injuries. Employee exposure to unguarded or inadequately guarded machines is prevalent in many workplaces. Consequently, workers who operate and maintain machinery suffer approximately 18,000 amputations, lacerations, crushing injuries, abrasions and over 800 deaths per year.

Amputation is one of the most severe and crippling types of injuries in the occupational workplace, and often results in permanent disability. Approximately 44 % of all workplace amputations occur in the manufacturing sector and the rest occur across the construction, agriculture, wholesale and retail trade, and service industries.¹ These injuries result from the use and care of machines such as saws, presses, conveyors, and bending, rolling or shaping machines as well as from powered and non-powered hand tools, forklifts, doors, trash compactors and during materials handling activities.

Safeguards are essential to protect workers from injury. Any machine part, function or process that might cause injury should be safeguarded. When the operation of a machine may result in a contact injury to the operator or others in the area, the hazard should be removed or controlled.

All machines consist of three fundamental areas: the point of operation, the power transmission device and the operating controls. Despite all machines having the same basic components, their safeguarding needs widely differ due to

1 www.osha.gov/sites/default/files/publications/osh3170.pdf

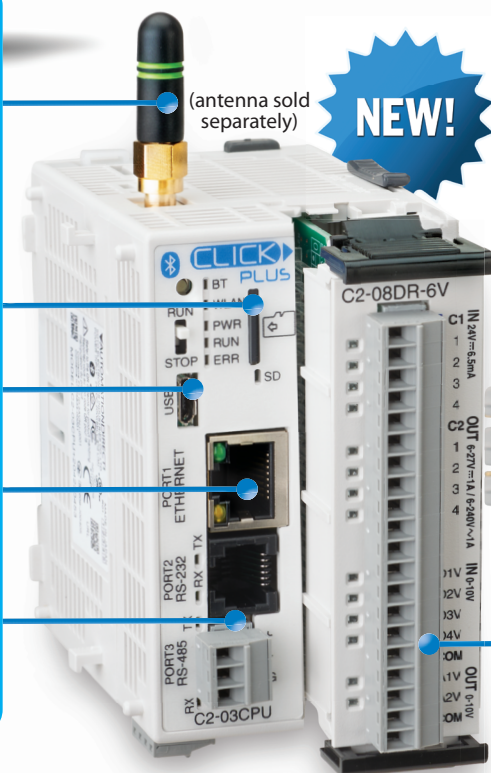
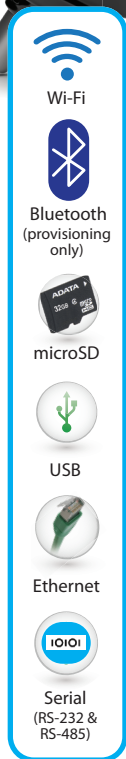
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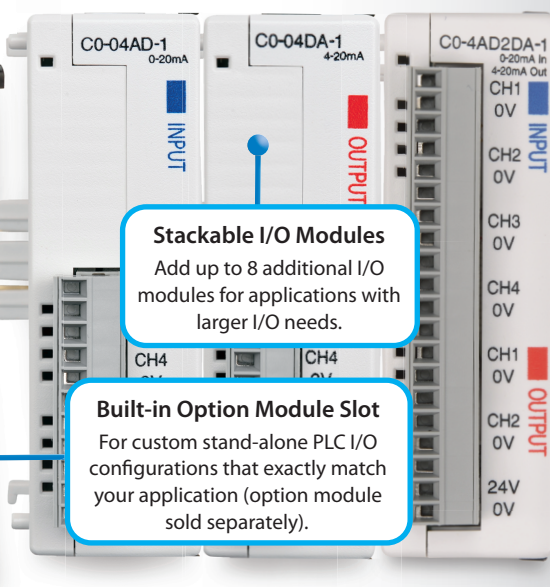
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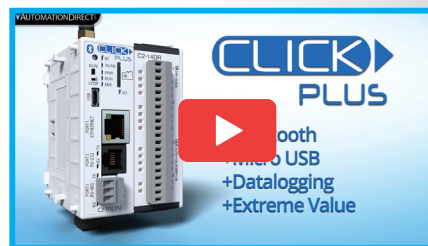


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Top OSHA Workplace Violations

varying physical characteristics and operator involvement. The purpose of machine guarding is to protect the machine operator and other employees in the work area from hazards created by ingoing nip points, rotating parts, flying chips and sparks. Some examples of this are barrier guards, light curtains, two-hand operating devices, etc.

Compliance

Among the provisions of OSHA's Machinery and Machine Guarding – General Industry standard:

- Guards must not create potential hazards and must be attached to the machine where possible.
 - If guards cannot be attached to the machine, attach elsewhere.
 - Machines that expose an employee to injury must be guarded. The guarding device must:
 - Be in conformity with any appropriate standards.
 - If specific standards are not available, the machine construction should prevent the operator from having any part of his/her body in the danger zone during the operating cycle.
 - Special handtools used for placing and removing material from point of operation areas must allow easy handling of the material without the operator placing a hand in the danger zone.
- Such tools must not replace guards required by this section: 29 CFR 1910.212(a)(3)(iii)]
- The following machines usually require point of operation guarding:
 - Guillotine cutters
 - Shears
 - Alligator shears
 - Power presses
 - Milling machines
 - Power saws
 - Jointers
 - Portable power tools
 - Forming rolls and calenders
 - Revolving barrels, containers and drums must be guarded by an enclosure interlocked with the drive mechanism, so the barrel, gun or container cannot revolve unless the guard enclosure is in place.
 - When the periphery of the blades of a fan is less than seven feet above the floor or working level, the blades must be guarded. The guard must not have openings larger than one-half inch.
 - A machine designed for a fixed location must be securely anchored to prevent walking or moving. **WMHS**

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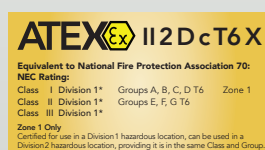
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Test Showers and Eyewashes How Often?

By: **David Withee**, Contributor

Short answer: weekly. Middle answer: testing annually, activating weekly. Long answer: as often as needed to meet OSHA requirements and expectations for your circumstances.

You see, OSHA Standard 29 CFR 1910.151 (C) words it simply, “Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.” The key word there is “suitable.” This leaves OSHA with plenty of leeway to take circumstances into account. This doesn’t give you the clearest direction, though.



Duke University Facilities Management staff preparing to test some of their 1,000 emergency showers and 2,000 eyewashes using Green Gobbler Safety testing carts. Photo courtesy of Green Gobbler Safety.

For instance, showers and eyewashes are typically located at plumbing deadlegs, with non-moving water unless the equipment is activated. Since the water is also normally tepid (more on that later), this is likely to create a corrosive environment for the plumbing and could even create an environment conducive to bacteria and biofilm growth. If someone needs to use an eyewash, do you really want rust to flow into their eyes? Or if using a shower, to have black gunk land on them? Activating showers and eyewashes weekly, long enough to ensure the water is clear, helps ensure your employees will be able to use the equipment safely and completely (and you will hopefully be in the good graces of OSHA).

A University of Colorado employee uses a Green Gobbler Safety testing cart to test an emergency shower for water flow, clarity, temperature and spread, while collecting the water for later disposal elsewhere. Photo courtesy of Green Gobbler Safety.

COMPLIANCE MATTERS

What if the water isn’t tempered and is just cold? You want a victim to stay in the water for at least 15 minutes to wash away corrosive materials, not jump back due to the shock of cold water. If you have tempered the water, weekly activation ensures it is still tempered as soon as someone needs to use the shower or eyewash. The ANSI standard, Z358.1, requires “tepid” water, which is defined as above 60° F (16° C) and below 100° F (38° C).

“But...” I can hear you ask, “what if we haven’t had a single need to use an emergency shower or an eyewash in twenty years?!” Well, you know how the saying goes, “It only takes once.” Do you want to explain to OSHA why you didn’t do the weekly activation? They will likely wonder what else you haven’t done to keep your employees safe. Do you really want them to wonder about that? By the way, even if your emergency showers and eyewashes were installed before the latest – or any – edition of ANSI Z358.1, you don’t get a pass on safety issues. Equipment which doesn’t meet standards, and a lack of annual testing and/or weekly activation, are two strikes where a single strike can be costly.

Let’s get back to the question of how often to test. OSHA will often refer people to ANSI / ISEA Z358.1 for guidance as to an industry consensus of what is needed in general. OSHA, though, may or may not accept meeting that standard when taking into account particular circumstances and incidents. The key is what have you done to make “suitable facilities”? Following the requirements of ANSI Z358.1 should at least show a good faith effort. ANSI requires weekly activation, so . . .

Besides, especially if you have an educational institution or healthcare facility, commissioning bodies are increasingly requiring ANSI Z358.1 be followed. Is losing your accreditation a risk you really want to take? Really?



Now the issue is often a matter of being able to activate showers and eyewashes easily and quickly, without making a mess. The mess is the challenge; no one wants to end up with water all over the floor. Laboratories are often built without drains to ensure chemicals don't mix with community water systems. Water all over the floor really puts a crimp on their lab work. Healthcare facilities can't afford to create circumstances which may create or exacerbate potential safety hazards, and definitely don't want to encourage the growth of biofilms, bacteria, mold, etc. Industrial facilities don't want to create safety hazards they are trying to avoid in the first place. Fortunately, several companies have developed products to help make weekly activation less of a challenge. You can minimize, and possibly eliminate altogether, the potential mess.

How often should you activate eyewashes and showers? The answer is, as often as needed to meet what OSHA would require in your circumstances. Following ANSI Z358.1 guidelines and activating weekly is a good place to start.

David Withee is an award-winning industry writer and Managing Director of Green Gobbler Safety (<https://greengobblersafety.com>), a company focused on creating products which solve customer challenges. Green Gobbler Safety offers fast, easy and compliant testing products for safety showers and eye washes (both pedestal and recessed types).



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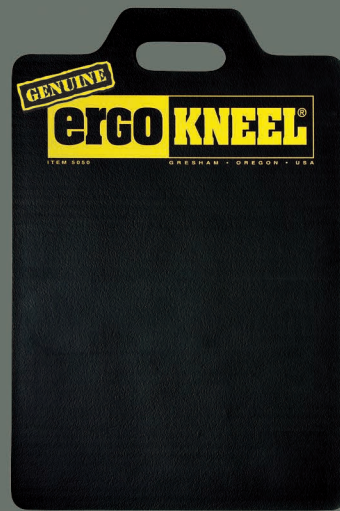
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A+A 2021

A + A 2021, International Trade Fair with Congress for Safety, Security and Health at Work, will be held from October 26 – 29, 2021 at the fairgrounds in Düsseldorf, Germany. It will showcase the entire range of products and services for personal and occupational safety: Safety at Work (personal protective equipment and clothing, safety equipment); Health at Work (first aid/rescue equipment, prevention and therapy, hygiene/sanitary supplies, ergonomics); Security at Work (fire/radiation protection, safety products/ systems, electrical safety, air pollution control, noise reduction, environmental protection, safety devices for machinery, transport, vehicles). A hybrid component will complement the live event.

www.aplusa-online.com



NSC Safety Congress & Expo is Back – With an Emphasis on Safety

The world's largest annual safety, health and environmental event – the NSC Safety Congress & Expo - is up ahead, with Professional Development Seminars taking place Oct. 8-10 and 13-14, and the Congress & Expo Oct. 11-13. Thousands of professionals and exhibitors from around the world will flock to the Orange County Convention Center in Orlando, Florida for the gathering, which has a 100+ year legacy of bringing people together to advance the mission of the National Safety Council (NSC): to save lives by preventing injuries and deaths at work, in homes and in communities. To this end, the NSC conducts research, advocates for best practices and provides education on safety.

A number of safety and health measures will be in effect. Face masks are mandatory for everyone exhibiting and attending, as well as participating in any NSC-affiliated meeting or event. Neck gaiters, bandanas and face shields are not allowed. Additionally,

- Proof of vaccination or negative COVID-19 test is required within 72 hours leading up to the event
- Contactless registration
- Safe distancing practices
- Regular cleaning protocols
- One-directional aisles
- Designated entrances/exits
- Seating limitations
- Good hygiene practices (frequent handwashing and use of hand sanitizer)

The 2021 NSC Safety Congress & Expo will have a contactless greeting policy. Attendees are asked to refrain from handshakes, hugs or high-fives.

An impressive lineup of keynote speakers will inspire and inform attendees. Monday's Opening Session topic will be one that's particularly relevant, given the challenges of the last year: Resilience: How to build it in yourselves and in those you lead. NSC President & CEO Lorraine M. Martin; best-selling author, Researcher of People + Performance and founder of the Strengths Revolution, Marcus Buckingham; and Flame of Life Recipient Kent McElhattan will discuss:

- The three key sources of resilience
- The ten questions to measure resilience
- The most effective techniques to build resilience in yourself, your organization and in those you lead

During the Campbell Institute Forum, moderator Erick Walberth, Director S&E North America for Schneider Electric, will lead a panel of experts in an exploration of safety culture from various organizational perspectives. The panel includes I. David Daniels, President/CEO of ID2 Solutions, LLC and Steven G. Schoolcraft, PhD, P.E., CSP, Corporate Vice President, Safety, Health & Environment for Parsons.



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This year's NSC Safety Congress & Expo will offer an in-person and virtual live online-only option.

Tuesday's Occupational Keynote will be by Corrie Pitzer, CEO of SAFEmap. Pitzer's topic: On the Other Side of COVID-19 – Stronger and Safer Than Ever! Pitzer will talk about how we can become “antifragile” and how we can embrace the virtual interaction, gamification, nudge theory, microlearning and immersive learning that became prevalent during the pandemic.

The Leadership Keynote, on 10 Leadership Principles to Ignite Your Safety Performance, will be delivered by Brian Fielkow, CEO of the GTI Group & Jetco Delivery.

A wealth of education sessions will keep attendees busy – and informed. Tracks range from Regulatory Compliance & Technical Topics, from Hazard Recognition & Risk Management to Training & Competency Development. Sessions include:

- Measuring Safety Performance: How Do You Know if Your Safety Management System is Working?

- “Deep Safety Leadership” in the High-Risk Environment
- The Human Dynamics of Achieving an Injury-Free Workplace: Safety Directives from Psychological Science
- Responding to Safety/Whistleblower Complaints, Defending OSHA Investigations/Inspections/Citations
- Addressing Workplace Impairment: Solutions Spanning Fatigue to Opioids
- Using Data and Human & Organizational Performance to Prevent Significant Injuries and Fatalities
- And the intriguingly named: Green Beans and Ice Cream: The Recipe for a Culture of Commitment

In keeping with its belief that technology will play a significant role in reducing – or even eliminating - injury and fatality rates, the NSC has launched new Safety Technology Pavilion where attendees can find information about creative and innovative technology that can help save lives, along with resources from the Work to Zero initiative, and educational tracks focused on technology solutions.

Among the networking opportunities at the show will be NSC Division/Section Meetings, which may include topics like:

- Industry trends
- Safety leadership
- Best practices
- Regulatory updates

Employees of NSC member companies as well as others, who pay an additional fee, can learn about emerging issues in their industries and connect with other safety professionals. **WMHS**

This year's NSC Safety Congress & Expo will offer an in-person and virtual live online-only option. People who register for it will have access to eight Live-Streamed Technical Sessions; four Live-Streamed Keynotes (Opening Session, The Campbell Institute Forum, Occupational and Leadership); 60 day on-demand access to above program after the event (Excludes Opening Session). They will also be able to earn CEUs/recertification credits. For more information visit: <https://congress.nsc.org/nsc2021/Public/Enter.aspx>.

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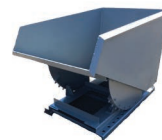


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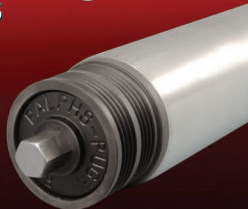
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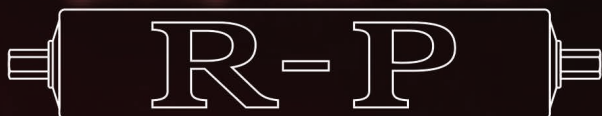


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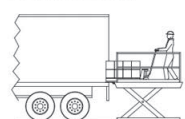


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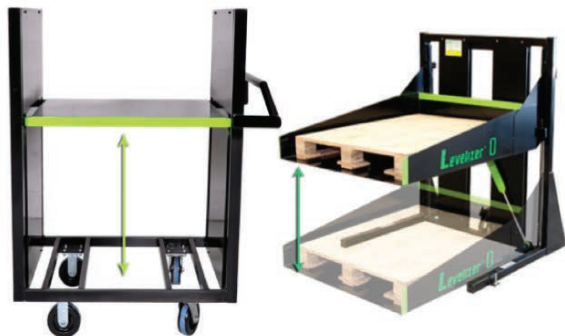
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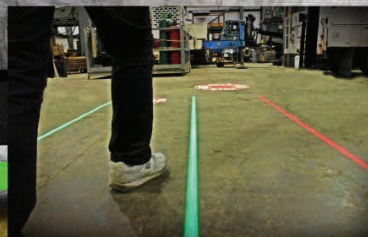
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