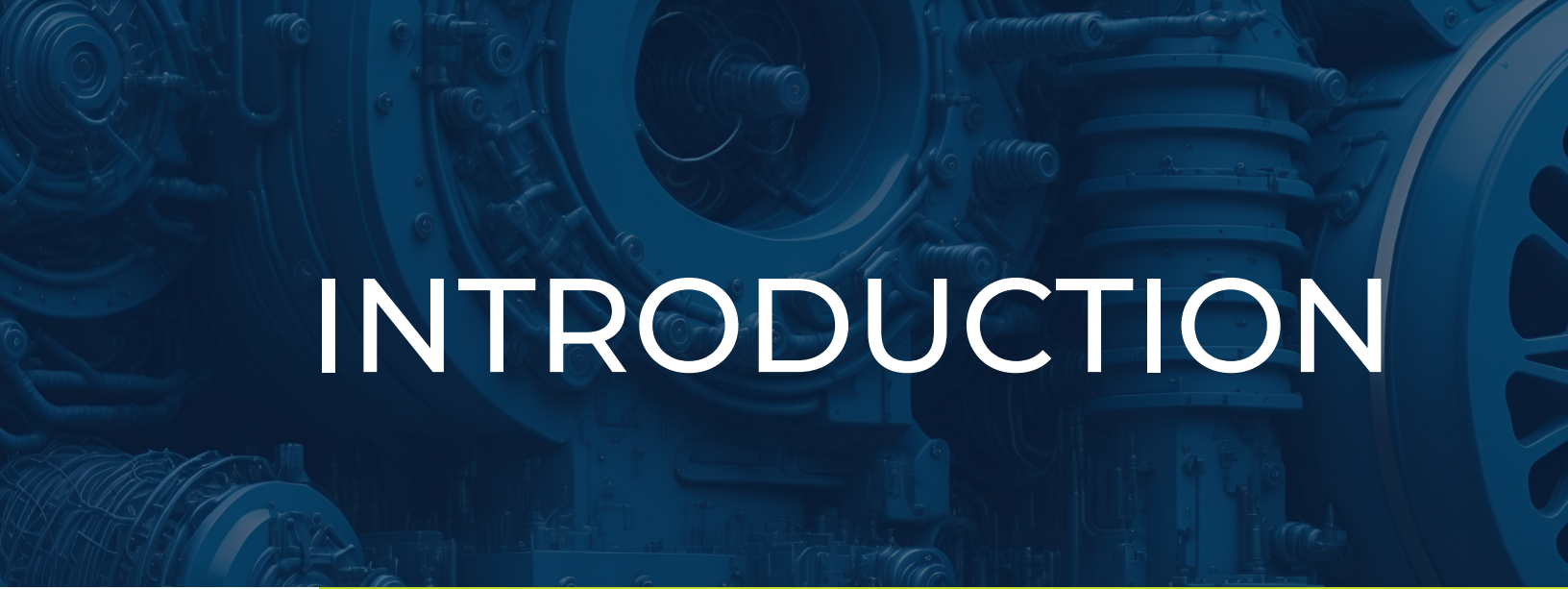


A photograph of a worker in a dark blue jacket and gloves using a grinding tool on a metal part, with sparks flying. A large metal spring is visible in the foreground.

YOUR GUIDE TO EHS IN MANUFACTURING:

How can you cultivate a best-in-class safety culture and protect the interests of your manufacturing operation?

A close-up, blue-tinted photograph of industrial machinery, featuring large gears, pipes, and mechanical components. The image is used as a background for the top half of the page.

INTRODUCTION

Safety. It is merely one word but perhaps no other has had such a significant impact across so many industries. From manufacturing and construction, to maritime and agriculture, successful organizations understand the importance that a strong safety program has to their operation.

LEGISLATIVE ACTION

In 1971, the Occupational Safety and Health Administration (OSHA) was created to ensure safe and healthy workplaces for people in occupations typically considered dangerous, like manufacturing and industrial. This was, in no small part, due to the number of accidents and fatalities that were taking place. Federal lawmakers, responding to increasing public outcry, created the agency to define safety requirements clearly and create an enforcement arm of the government. OSHA supports employers and employees with programs to improve worker training, outreach, and enforcement of labor laws.



Chapter One

The Evolution Of Safety In Manufacturing

Arguably, it has taken many decades for employers in some industries to take steps to improve the safety and health of their workforce. The change in attitude may be due to the fact that many organizations discovered that improving their processes and procedures to create safer work environments also improved efficiency, enhanced the quality of the final product, and established a more engaged and skilled workforce.

However, there is still a long way to go. Some organizations perform work that is inherently hazardous and, therefore, could be subject to increased regulatory oversight and internal control. But statistically, organizations that take the safety and health of their workforce seriously usually have procedures in place that create accountability, incorporate employee recommendations in improving their health and safety practices, and tend to have above-average employee morale while also leading their respective industries as more desirable places to work. It has also been shown that workplaces that achieve excellence in safety have better performance in quality, productivity, and profitability than other companies in the same industry.

Chapter One: The Evolution of Safety in Manufacturing

BY THE NUMBERS...

With that in mind, it is worth noting some of the most common hazards faced by workers in manufacturing facilities. According to OSHA, the Top 10 most frequently cited standards in FY2023 (Oct. 1, 2022–Sept. 29, 2023*) for manufacturing and construction are as follows:

1. 29 CFR 1926.501 Fall Protection (General Requirements)** (7,271 violations)
2. 29 CFR 1910.1200 Hazard Communication (3,213 violations)
3. 29 CFR 1926.1053 Ladders (2,978 violations)
4. 29 CFR 1910.134 Scaffolding (2,859 violations)
5. 29 CFR 1910.451 Powered Industrial Trucks (2,561 violations)
6. 29 CFR 1910.147 Lockout/Tagout (2,554 violations)
7. 29 CFR 1910.178 Respiratory Protection (2,481 violations)
8. 29 CFR 1926.503 Fall Protection Training Requirements (2,112 violations)
9. 29 CFR 1926.102 Eye and Face Protection (PPE) (2,074 violations)
10. 29 CFR 1910.212 Machinery and Machine guarding (1,644 violations)

* Data from the National Safety Council (NSC) is preliminary and subject to change.



**** According to OSHA, Fall Protection has been the number one most-cited violation for the past 13 years.**

OSHA regulates and reinforces safety standards for manufacturing, construction, agriculture, and maritime activities. However, you are likely not alone if you are having difficulty understanding the regulations. All of these industries involve the potential of severe risks and, therefore, tend to be heavily regulated, making it difficult to remain up to date on what those regulations are. If you are not an expert in what laws govern work at your facility, you may benefit from using the services of a consultant. An organization with experience and expertise in working with regulatory agencies and within hazardous industries can effectively guide you through updating or improving your processes and procedures to ensure your facility is in compliance with applicable laws.



Chapter Two

What Are The Risks in My Facility?

Some risks apply universally in manufacturing facilities, as shown by statistics. For example, overwhelmingly, *Slips, Trips, and Falls* appear to cause a significant number of injuries in manufacturing organizations. According to OSHA, 15% of all accidental deaths in such establishments are caused by *Slips, Trips, and Falls*, second only to motor vehicles as a cause of fatalities. Most fatalities in the category *Slips, Trips, and Falls* can be attributed to falls from heights.

Often, in manufacturing settings, Slips, Trips, and Falls can best be avoided by improved housekeeping in the facility. In other circumstances, engineered solutions like guardrails or safety nets help ensure the safety of employees who work at heights. Another line of defense against falls is PPE (Personal Protective Equipment) or fall protection lanyards, which may often be worn by employees who work at heights, on top of equipment, on roofs, or perform work on aerial lifts.

Wearing PPE is also important in facilities where hazardous chemicals are used. Workers with potential exposure to open pits or tanks containing dangerous substances are usually



“ Building a strong safety culture shows your team that you care about them, and the benefits extend far beyond safety.

David Garner,
EHS Director
Walden Environmental
Engineering

required to wear specific PPE such as safety glasses, nitrile gloves, or other protective clothing. Tanks must also be appropriately labeled and access must always be restricted unless otherwise instructed by the manufacturer or on-site expert. Failure to properly handle such substances and protect workers could result in devastating chemical burns or other injuries due to inhalation or other routes of exposure. This is also true when disposing of such materials. Improper disposal puts workers, the environment, and, potentially, the general public at risk.

Other often-cited safety risks include working on elevated surfaces or ladders, confined spaces, flying objects, heavy machinery, chemicals, and more. While every organization should always operate with the goal of ZERO accidents or incidents, it can be challenging to mitigate every operational risk. Even if you think your facility poses low or no risk to workers, there's always a chance that some risks are present that you are unaware of.

For example, when machine guards are removed the equipment must be locked out to ensure unaware employees are not exposed to hazardous energy.

Working with a skilled EHS consultant can help your organization get a handle on safety by performing a thorough audit with an eye on identifying the top causes of accidents and improving processes to prevent risk.

A photograph of industrial machinery, likely a water filtration or treatment system. It features several large white cylindrical tanks, black and grey hoses, and various valves with red and yellow handles. A yellow warning sign with the word "CAUTION" is visible on the right side of the machinery.

Chapter Three

Managing Risk?

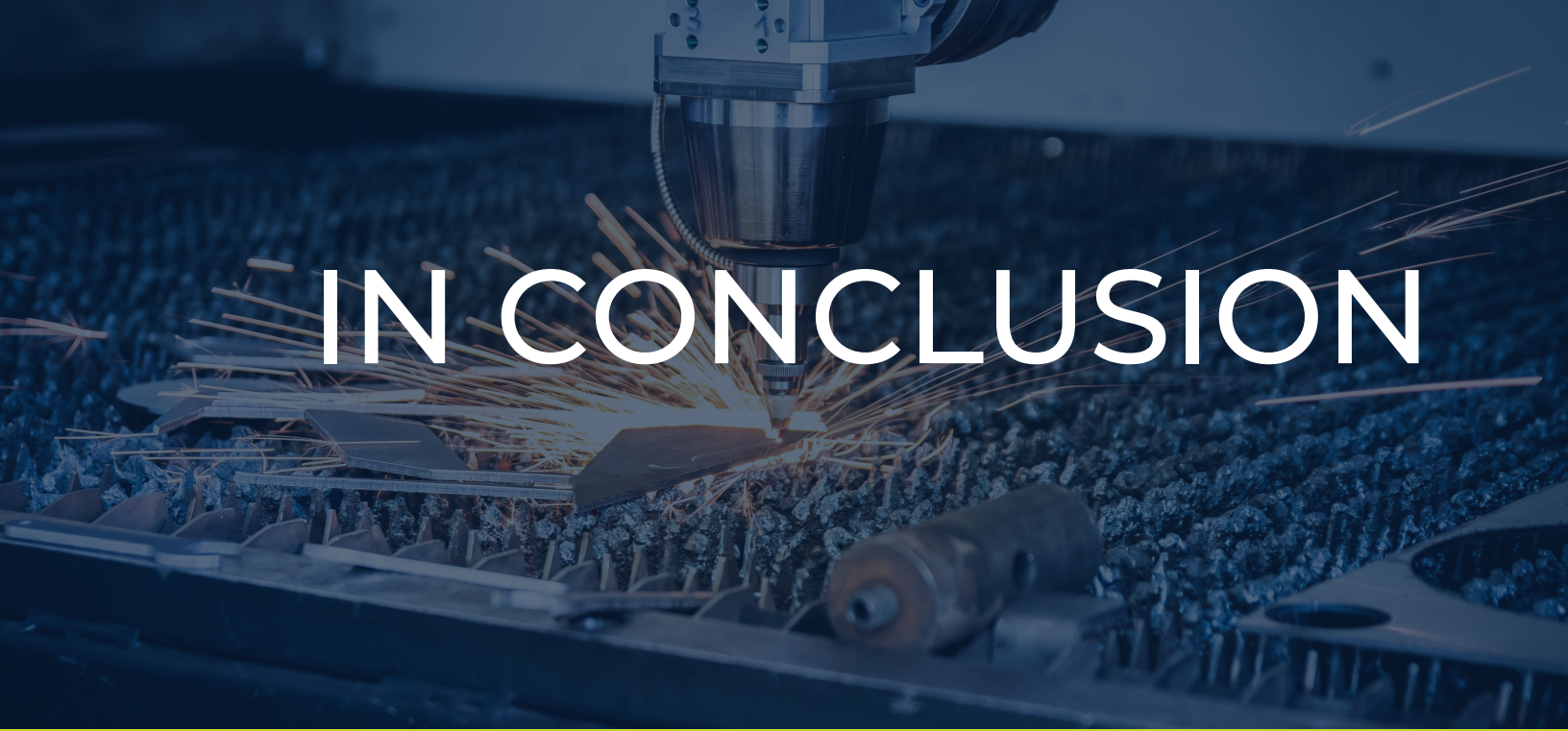
Are there other risk factors owner/operators of manufacturing companies should worry about?

Quantifying all the risks identified and regulated by OSHA would be nearly impossible. That is why partnering with qualified EHS consultants with experience working for organizations that perform high-risk activities is important.

For example, machinery must contain proper guards to ensure employees do not accidentally contact parts that could injure them. Any employee operating such machinery must also be fully trained to understand the hazards of the machine and take steps to mitigate the same. Those employees must be trained and always operate machinery according to the manufacturer's instructions with all protections in place and properly utilized.

In addition to machinery used on the production lines in manufacturing facilities, employees may be required to use industrial vehicles like forklifts for moving goods around the facilities. Forklifts are integral to material handling in most manufacturing facilities, but have significant hazards associated with their use and operation. Even companies using only electric pallet jacks have to perform training and inspections in addition to other compliance requirements.

From falling objects and electrical hazards to lockout tagout and hazardous material/waste handling, working environments can be fraught with dangers. Many injuries and fatalities in workplaces could have been avoided if the employers had paid more attention to safety in their facility and the employees were properly trained for the task at hand. But the good news is that you *can* keep your employees safe and protect your organization.



IN CONCLUSION

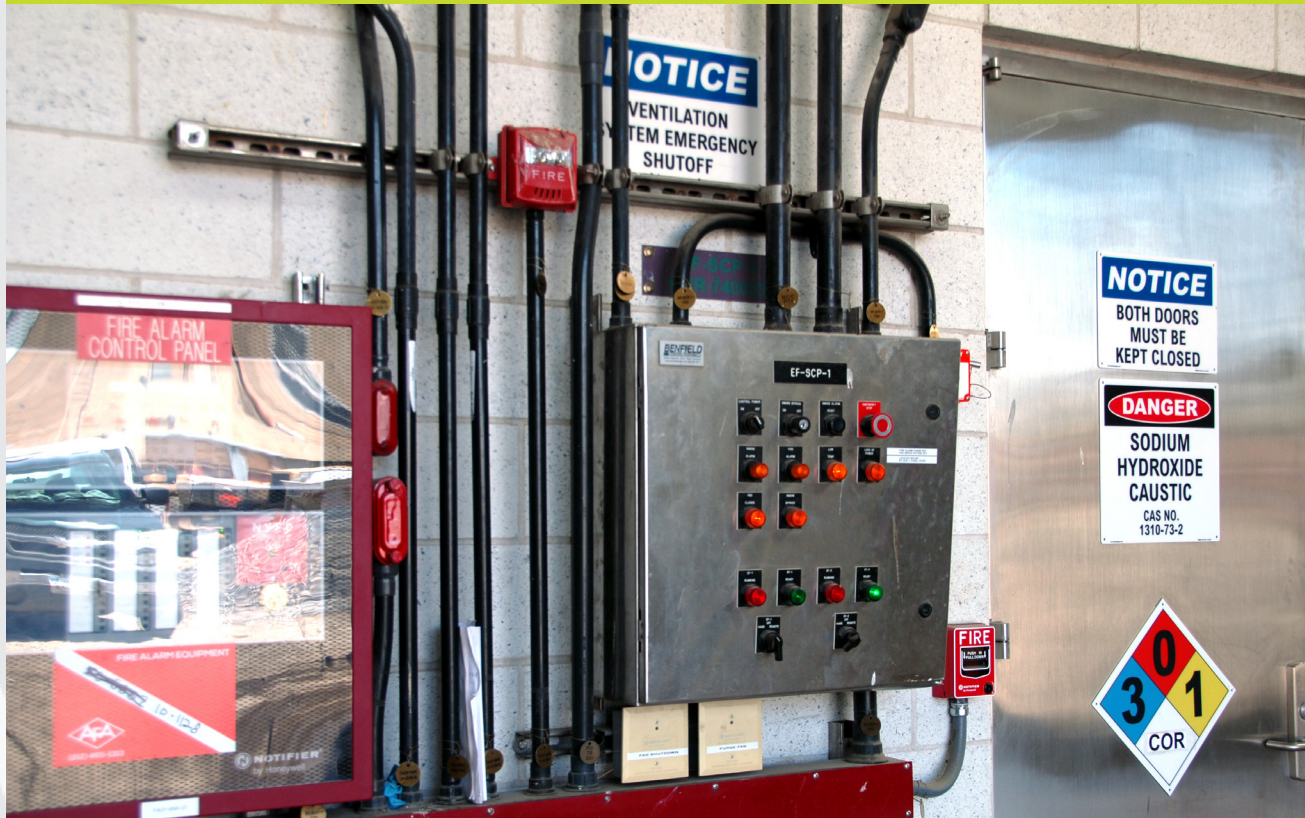
Continuous Improvement

A well-thought-out and detailed safety plan is critical in helping organizations build a first-class safety culture and constantly improve operations. As any EHS professional can tell you, regulations get updated frequently. If you want to ensure your operation is in compliance, your plan should be reviewed periodically with all stakeholders and amended as necessary.

In fact, it is a good idea to have your entire EHS plan audited yearly, including your training practices, ideally by someone outside of your organization with EHS expertise. A fresh set of eyes on your processes and procedures may observe deficiencies and identify appropriate corrective actions.

Furthermore, when new employees join your organization, they must be trained so that you can be sure they are working in alignment with the standards that you have set for your organization. Depending on job assignments and safety risks, existing employees could benefit from annual “refresher” training and may be legally required to do so in some cases. Additional or more frequent training may be required when employees change areas or machines or in response to a safety incident. Remember, if you manage a high-risk facility, it is your responsibility to know what tasks employees are doing and ensure they have the required training and protective equipment to do what they are being asked to do safely.

If you have done all of this and find that you still want to improve your efforts, ask yourself the following questions:



- Does everyone at your facility know what to do in the event of an accident or emergency? (For example, an accidental release of a hazardous substance could impact every employee, not just those in direct contact with the hazard.)
- Have you performed emergency drills at your facility?
- Does all emergency equipment work properly?
- Does everyone know where to go, who to call, and what to do if there is a problem?
- Do you have an incident communications plan that has been shared with every employee?

Working environments can be fraught with hazards, from falling objects and electrical hazards to lockout tryout and hazardous material/waste handling each site is unique and needs a safety plan that addresses the hazards in their workplace.

In the end, there must be a consensus from executive leadership down to the frontlines that safety is part of the organization's culture and as such, everyone plays a part in improvement. That may include goal setting or incentives, such as giving recognition to employees who have gone for a certain period without an incident or accident. In any case, it is important to remain consistent, transparent, and open to suggestions.