



# Building Workplace Safety in Manufacturing Environments

**Nearly 13 million Americans are employed in manufacturing<sup>1</sup>; according to the Bureau of Labor Statistics. And for each of these 13 million people, safety is a top concern.**

**The safety and well-being of employees is a genuine, fundamental concern for manufacturers everywhere. But building workplace safety in manufacturing environments has other benefits for businesses as well.**

## **COSTS OF WORKPLACE ACCIDENTS**

Accidents in the workplace result in direct costs to the employer – and that cost may be higher than expected. For example, the National Safety Council estimates the total costs of work-related deaths and injuries in 2021 totaled \$167 billion.<sup>2</sup> This breaks down to:

\$1,080 per worker  
\$1.3 M per death  
\$42,000 per injury

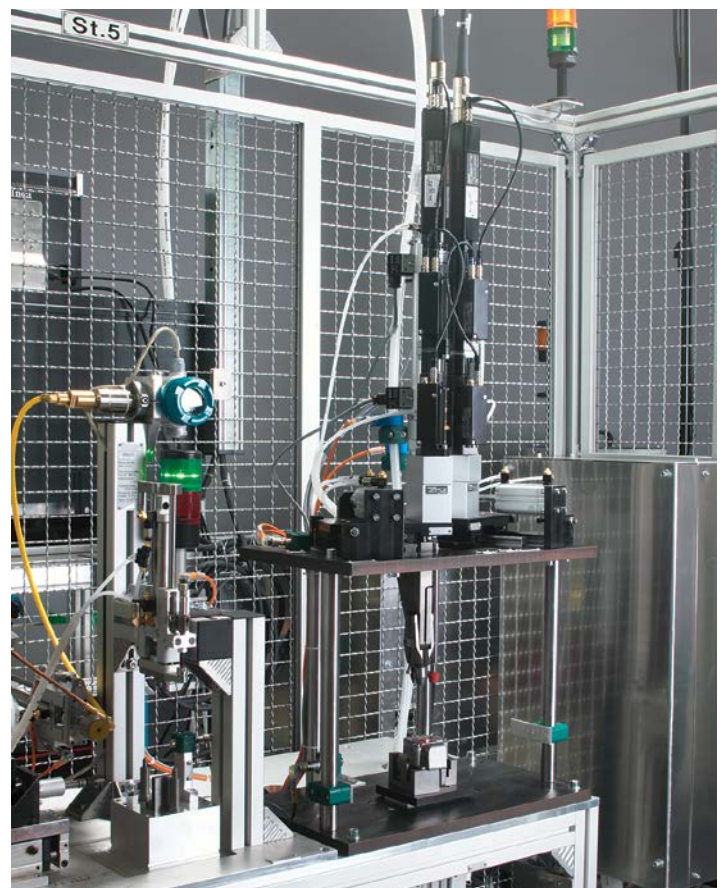
Taking precautions to improve workplace safety helps businesses avoid the monetary repercussions of workplace accidents. But these dollar amounts are not the only costs of an unsafe workplace. A manufacturer without a comprehensive approach to safety will bear indirect costs as well, including higher turnover, lower engagement, reduced productivity, absenteeism, stress, and more – all of which can negatively impact the bottom line of the business.

## **BENEFITS OF A SAFE MANUFACTURING ENVIRONMENT**

Building workplace safety in manufacturing environments may require an investment of resources. However, there is a return on investment that can be measured in both direct and indirect benefits. These include:

### **Reduced incidents and injuries:**

Obviously, the primary effect of a safer working environment is a lower risk of workplace accidents, injuries, and illnesses. This leads to fewer lost workdays, lower worker's compensation costs, and decreased insurance premiums for employers.



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### **Morale and satisfaction:**

When employees feel safe and secure at work, their morale and job satisfaction improve. They are more likely to be engaged, motivated, and productive, leading to higher performance and lower turnover rates.

<sup>1</sup> <https://www.bls.gov/iag/tgs/iag31-33.htm>

<sup>2</sup> <https://injuryfacts.nsc.org/work/costs/work-injury-costs/#:~:text=Work%20Injury%20Costs%20and%20Time%20Lost&text=The%20total%20cost%20of%20work,administrative%20expenses%20of%20%2457.5%20billion.>

## A survey of production line workers and managers found that perceived occupational health risks significantly negatively affected job satisfaction.<sup>3</sup>

### Productivity:

On a related note, a safer work environment can lead to higher employee productivity. For example, a study by Lockheed Martin found that by developing a safety culture, the company was able to increase employee productivity by 24% while reducing overall factory costs by 20%.<sup>4</sup>

### Cost savings:

By preventing workplace accidents and injuries, manufacturers can avoid financial expenditures associated with:

- Medical expenses
- Worker's compensation
- Legal fees
- Compliance penalties/fees

## “Studies have consistently shown that every dollar invested in safety results in \$4–\$6 in reduced costs.” – Safety Management Group

### Company reputation:

Companies that prioritize workplace safety demonstrate their commitment to the well-being of their employees and community. This enhances their reputation as responsible employers and helps attract top talent, customers, and business partners.

### Regulatory compliance:

Maintaining a safe working environment ensures compliance with government regulations and industry standards, reducing the risk of legal liabilities and penalties for non-compliance.

### Employee relations:

Employees appreciate when their employer prioritizes their safety and well-being. A safe working environment helps to foster trust, loyalty, and positive relationships between management and employees.

- **97%** of employees say that physical safety at the workplace is an important consideration for them.<sup>5</sup>
- **71%** of employees whose organization has put less effort into safety in the last year report losing trust in their employer.<sup>6</sup>
- Over **60%** of employees would prefer a workplace with strong health and safety policies, even if it means accepting a lower salary.<sup>7</sup>

### Quality:

“The intersection of quality and safety in an organization’s daily operations is of the utmost importance. These two aspects are inherently connected, as deficiencies in quality can often result in safety hazards, and vice versa. The symbiotic relationship between quality and safety becomes particularly apparent when considering that deviations from quality standards can not only lead to dissatisfied customers but also pose safety risks. Conversely, lapses in safety protocols can result in accidents, injuries, or damages that inevitably affect the quality of products or services provided.”<sup>8</sup>

### Lower employee absences:

The direct impact of a safe working environment is that it reduces the number of physical injuries and illnesses, like slips, trips, and falls. But these are not the only safety issues that lead to lost workdays. A recent study<sup>9</sup> found that musculoskeletal disorders accounted for the loss of 8.9 million working days in a single year, with workers suffering from neck and back pain missing an average of 18.4 days off. The same study found evidence that stress, depression and anxiety account for:

- 51% of all cases of work-related ill health
- 55% of all working days lost due to work-related ill health

3 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8872356/>

4 <https://safetylineoneworker.com/blog/is-safety-productive#:~:text=A%20key%20aspect%20of%20finding,reduce%20factory%20costs%20by%2020%25>

5 <https://www.alertmedia.com/employee-safety-report/>

6 <https://www.alertmedia.com/employee-safety-report/>

7 <https://gitnux.org/workplace-safety-statistics/>

8 <https://www.cority.com/blog/quality-safety-management/#:~:text=The%20intersection%20of%20quality%20and,safety%20hazards%2C%20and%20vice%20versa.>

9 <https://worknest.com/blog/how-good-health-and-safety-practices-help-reduce-absence-rates/>

A workplace safety initiative that considers different types of safety – preventing physical injury, MSDs, and protecting mental health – is the best way to reduce health-related absenteeism and ensure that work schedules are maintained, and production targets are met.

## HOW TO BUILD WORKPLACE SAFETY IN MANUFACTURING ENVIRONMENTS

To establish and maintain a safe workplace in a manufacturing environment, companies must create a multi-faceted, balanced safety strategy. Essential components of a comprehensive safety strategy include:



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### Risk assessment / hazard identification:

The initial step in establishing or improving safety in a manufacturing environment is to review the environment and identify any existing or potential hazards and risks.

This includes recognizing physical hazards (for example, machinery malfunctions or improper storage), chemical hazards (like exposure to toxic substances), and less-than-optimal ergonomic situations that could lead to MSDs.

### PPE and machinery:

Ensure that workers have access to wear appropriate personal protective equipment (PPE) – including helmets, gloves, goggles, safety shoes, etc. Additionally, employers should maintain and regularly inspect machinery and tools to ensure they are in proper working condition, as malfunctioning equipment can cause an emergency.

### Employee training and education:

Employers must provide comprehensive training to all employees regarding safety procedures, equipment operation, and emergency protocols. Ensuring that employees understand the risks associated with their work not only helps them to be safer in their regular duties – it also communicates the employer's concern for (and commitment to) employee safety.

The value that employees place on safety and education would be difficult to overestimate. A recent study found that all the top safety measures that employees want from their employers relate to communication.

### Which safety actions do you want your employer to do more of?<sup>10</sup>

- **44%** Keep employees informed of efforts to prioritize mental health
- **42%** Provide regular updates on efforts to maintain a safe workplace
- **42%** Provide updates on changes to safety protocols and procedures
- **41%** Train employees to respond to safety incidents and emergencies
- **40%** Conduct emergency drills and exercises to prepare employees
- **40%** Give regular safety talks to supplement comprehensive training
- **40%** Test communication channels ahead of incidents and emergencies

<sup>10</sup> <https://www.alertmedia.com/employee-safety-report/>

**Safety policies and procedures:**

Establish clear safety policies and procedures that are communicated effectively to all employees. Encourage reporting of hazards or near-miss incidents and implement a system for addressing and resolving safety concerns promptly.

**Emergency preparedness and response:**

Develop and regularly review emergency response plans for various scenarios, including fires, chemical spills, and medical emergencies. Conduct drills to ensure employees are familiar with evacuation routes and emergency procedures.

**Ergonomics and workstation design:**

Optimizing workstation design to ensure that they are ergonomically sound is foundational to minimizing strain and injury. Ergonomic equipment, such as adjustable chairs and workbenches, can help reduce the risk of musculoskeletal disorders.

## ALUMINUM FRAMING WORKSTATIONS

Aluminum framing is commonly used in manufacturing environments to provide modular solutions with flexibility and versatility. Workstations and assembly technology that utilizes aluminum framing has several distinct advantages over other materials, including:

**Lightweight and durable:**

Aluminum framing is lightweight yet strong and durable, making it suitable for constructing sturdy workstations without adding unnecessary weight. This reduces the risk of strain or injury when assembling or reconfiguring workstations.

**Non-corrosive:**

Aluminum is resistant to corrosion, making it suitable for use in manufacturing environments where exposure to moisture, chemicals, or harsh conditions is common. This helps maintain the structural integrity of the workstations over time, reducing the risk of accidents due to deterioration and reducing the need for frequent replacement of parts or entire workstations.



*Optimizing workstation design to ensure that they are ergonomically sound is foundational to minimizing strain and injury.*



*Workstations that are designed with ergonomics in mind help to reduce the risk of musculoskeletal disorders and fatigue.*

**Modular:**

Aluminum framing systems are modular, which makes them easy to customize and reconfigure. This adaptability ensures that workspace layouts are optimized for efficiency and safety; and that when needs change, your system can be changed quickly and easily.

**Compatibility:**

Aluminum framing systems are compatible with a range of safety accessories such as machine guards, safety barriers, and ergonomic aids. Integrating these accessories provides additional protection against hazards, improving workplace safety.

**Compliance:**

Many aluminum framing systems are designed and manufactured in accordance with safety standards and regulations for manufacturing environments. Using compliant materials and components helps to ensure that workstations meet safety requirements, reducing the risk of injury and of compliance-related penalties or liabilities.

## HOW TO USE ALUMINUM FRAMING IN MANUFACTURING ENVIRONMENTS

To make the best use of aluminum framing to create a safe working environment for manufacturers, be sure to consider:

**Stability & structural integrity:**

Aluminum workstations must be properly assembled and anchored to prevent tipping and collapse, especially when heavy materials or weights are placed on them.

**Weight capacity:**

Avoid overloading shelves, work surfaces, or overhead storage racks to prevent structural failure.

**Sharps/burrs:**

Conduct regular inspections to identify and remove any sharp edges or burrs or provide protective covers to mitigate the risk of injury.

**Electrical safety:**

Ensure that any electrical components (including power outlets or lighting fixtures) are installed and maintained according to electrical safety standards.

**Fire safety:**

While aluminum is non-combustible, other components in a workstation may pose a risk. Implement fire prevention measures and equip workstations with appropriate fire extinguishers.

**Ergonomics:**

Workstations that are designed with ergonomics in mind help to reduce the risk of musculoskeletal disorders and fatigue. Some applicable features include adjustable height work surfaces, ergonomic seating options, and proper lighting.

**Material handling:**

The risk of strains, sprains, and other physical injuries can be mitigated by providing training for employees and lifting equipment where necessary.

**Keeping workers safe in manufacturing environments can be a challenge. There are many different factors that can affect workplace safety in manufacturing – from physical injury to repetitive injuries or musculoskeletal disorders, and injury and illness related to stress, fatigue, and other mental health concerns. To create a comprehensive safety strategy, employers should consider conducting thorough, regular safety assessments, building a culture of safety through communication and training, and creating a safe environment with the right equipment for each stage of production. Manufacturers can reduce the risk of injury or illness and reap significant benefits, including lower costs, higher productivity, and a stronger relationship with employees.**

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