

Exclusive
Guide

Construction Industry Trends:

Predicting and Preventing Construction Accidents



CLMA

Too often, working in the construction industry is a dangerous job. About one in every ten construction workers is injured every year. In fact, since 2002, over 19% of all U.S. workplace deaths have been in the construction industry. Construction accidents disrupt lives and families and lead to higher costs and project delays.

A culture of safety within a company and on a jobsite can dramatically change safety performance for the entire crew. A culture of safety exists when the workers and leaders think safety and act safely individually and on behalf of each other.

There are a number of indicators of a risk for increased accidents on your construction project, which are discussed below.

Common Construction Safety Risks

The following working conditions are indicators of higher risk of accidents:

-  **Elevated work**
Construction workers spend a lot of time above ground. Whether they're working on ladders, scaffolding, or just an open faced building, there are numerous opportunities to fall. Scaffolding falls account for more than 30 percent of construction fatalities. Training, fall protection and regular maintenance on elevated structures can reduce the risk of accidents.
-  **Untrained craft operators**
Working with heavy machinery requires proper training and extreme focus on the task at hand. Putting someone on a piece of equipment that they may not be entirely familiar with increases the risk of accidents. We must continuously train the skilled workforce to be both productive and safe.
-  **Overhead work and falling debris**
Hardhats and safety glasses are a must 100% of the time on a project. Training on the risks of overhead work and falling debris is essential. Every worker must be concerned about and aware of themselves and those around him or her.
-  **Unprotected electrical hazards**
Construction sites have a lot of different activities going on at once, and some of them pose dangerous risks. Untrained workers can easily find themselves injured by electrical shocks or worse. Having live electricity that is not properly labeled and handled can also cause injury to even the most seasoned workers who aren't expecting potential threats in the area they're working in or if they decided to take a shortcut because they thought they were experienced enough to avoid an accident.
-  **Poor housekeeping**
Unspooled wires, stray boards, and tools not properly stored are just a few examples of how an untidy construction site may be dangerous. A construction site is constantly moving things where they are needed and this can cause problems for even the most vigilant of workers. It only takes a slight misstep to cause a nasty trip or fall which can lead to a serious injury.

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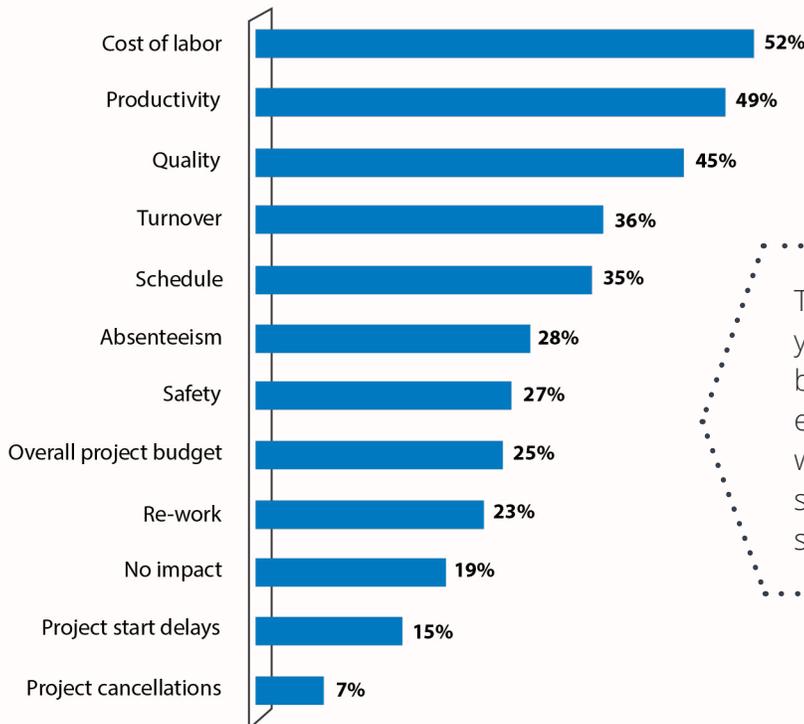
Conditions and Trends Likely To Increase Accidents

State of the Economy

In a good economy there is an increase in the demand for construction because more companies are more likely to build new facilities. This increase in construction results in an increased demand for a skilled workforce, but a sufficient number of skilled workers may not be readily available. Less skilled workers are often recruited, and due to inexperience, they have a higher risk of accidents. Also, an increased demand to get more work completed is likely to cause tighter schedules and more overtime which are all indicators of higher risk of accidents.

State of the Industry

When the construction industry is busy, contractors are more likely to go outside their current labor pool. This leads to inexperienced workers who know only the minimum company safety requirements. They also may be rushed, making them even more prone to accidents. Additionally, an increase in demand and too few workers with the right skills, often causes workers to be used in roles with which they're unfamiliar or not experienced. Often the workers need training or skill upgrades to perform safely and productively.



The risk for an increase of accidents at your construction site can also be caused by outside factors such as the state of the economy and the construction industry, worker shortages, aging workers, rework, schedule and budget challenges, labor shortages, insufficient training and more.

During the previous construction cycle of the mid-2000s, skilled worker demand greatly exceeded skilled worker supply, and based on the 2012 research by the Construction Users Roundtable (CURT) and the Construction Labor Market Analyzer® (CLMA), (see above chart), many projects experienced lower productivity and increased accident rates because of unskilled workers.

Studies indicate that as much as 60% of workplace injuries in construction happen within the first year of active employment. The experience of the workforce at your site is a significant indicator when predicting possible construction accidents.

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Project Schedule

Your schedule as a whole can be a good predictor of whether or not you may experience an increase of accidents. Trying to rush your schedule and not giving workers enough time is likely to increase accidents. Rushing a project means less care and thought is given to safety, which leads to accidents harming not only the worker who causes them, but also potentially other workers around the area.

The weather during your construction project can be a major cause of accidents and delays for your project. Additionally, projects scheduled during times with frequent holiday breaks are also likely to increase accidents. Construction accidents are statistically more likely to happen on a Friday, or before a holiday weekend, because workers often rush to try to finish early on those days, and end up overlooking important safety measures.



Missed Schedules

Insufficient labor availability, rework, weather delays, scope changes, engineering problems, lack of adequate front-end planning and many other issues can lead to missed schedules, contractors and workers are required to work faster and frequently on overtime to make up. In a best case scenario, these circumstances can lead to higher accident rates especially when executed with an unskilled workforce.

Project Rework

An inexperienced workforce usually means they are less productive and more rework is required. Frequently, rework is not planned as well as new work, must be completed quickly and can lead to higher risk of accidents.



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Aging Workers

The U.S. Bureau of Labor Statistics (BLS) and the Construction Labor Market Analyzer® (CLMA) track the U.S. workforce by age groups. This data indicated that the current labor participation rate for all age groups is at a 37-year low recording at 62.8% for the 2015 average. At the same time, new construction hires have decreased 14.5% since 2008. The annual job openings have increased 23.8% and the annual layoffs have decreased 39.5% indicating an increasing demand in the construction industry, a decreasing supply, and an expected shortfall of available craft due to an aging workforce. Aging workers are retiring later than usual because they need the money and their skills are in high demand; however, they are more likely to experience safety problems, despite their experience, because of slower reaction time and increased fatigue capacity.

Age Attrition

The BLS data also indicates that in 2002 the age group of 16-24 years of age made up 13.5% of the workforce and in 2014 it was only 8.7%, a total decrease of 65% of those seen as traditionally entering the labor force. At the other end of the spectrum, the age group of 55 years of age and older was only 11% in 2002 but 19.3% in 2014, a 75% increase. This trend demonstrates an aging workforce and an increased expected retirement rate.

Craft Title	Average Age	Attrition in 2 yrs	Attrition in 5 yrs	Attrition in 10 yrs	Attrition Threshold
Boilermaker	41	10.1%	16.5%	28.6%	60 yrs
Boilermaker Welder	38	1.1%	3.3%	14.4%	60 yrs
Carpenter (Scaffold Builder)	42	15.3%	23.4%	36.7%	58 yrs
Electrician	42	3.7%	7.9%	17.6%	65 yrs
Instrumentation Technician	43	8.5%	14.4%	24.4%	65 yrs
Insulator	42	18.5%	24.0%	37.2%	58 yrs
Ironworker (Reinforcing)	43	16.1%	22.9%	36.3%	58 yrs
Ironworker / Welder (Structural)	42	14.9%	22.3%	34.5%	58 yrs
Lineman	44	17.5%	20.0%	30.0%	60 yrs
Millwright	44	13.2%	21.2%	35.1%	62 yrs
Millwright Welder	39	0.0%	1.8%	10.7%	62 yrs
Operator (Heavy Crane)	45	6.7%	12.4%	28.8%	65 yrs
Operator (Heavy Equipment)	43	10.5%	17.2%	30.3%	62 yrs
Pipefitter	41	11.4%	17.1%	28.4%	60 yrs
Pipefitter / Combo Welder	40	11.1%	15.9%	23.7%	60 yrs
Rigger / Signalperson	41	6.0%	11.3%	20.9%	62 yrs
Welder (Speciality)	40	17.8%	23.8%	34.3%	55 yrs
Total / Average	42	11.4%	18.2%	31.7%	60 yrs
Total / Average (Industrial Trades)	42	11.4%	17.1%	28.8%	61 yrs
Construction Manager	52	28.5%	42.4%	58.3%	62 yrs
Engineer (Field)	42	11.8%	18.0%	24.6%	65 yrs
Inspector / Quality Assurance / Quality Control	46	11.4%	16.6%	29.1%	65 yrs
Safety Specialist / Representative	42	6.8%	9.5%	13.5%	65 yrs
Superintendent	45	11.5%	17.3%	31.0%	62 yrs
Total / Average (Professionals)	45	7.8%	12.1%	23.7%	64 yrs

The CLMA® supply data, imported directly from contractor and labor provider payroll information was compared to the BLS data and validated to follow the same trend, but provides significantly greater detail. For example, If we assume an overall average retirement age of 61 years old for industrial craft workers overall, the age attrition in 2 years would be 11%, 17% in 5 years and nearly 29% within 10 years for industrial craft disciplines. An increase in retirements means an influx of less experienced workers, which increases safety risk.

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How To Prevent Construction Accidents

Construction accidents are avoidable. Below we've outlined a few tips to help prevent accidents on your site.

Effective Front-End Project Planning

Front-end planning is understood as essential, yet too often overlooked. Understanding your project risk early greatly increases the opportunity to avoid or mitigate those risks, particularly safety risks. This includes effective early involvement by contractors for front-end planning and ongoing owner involvement as construction proceeds. Ongoing collaboration makes it possible to achieve the greatest benefit from these recommendations for risk mitigation. Options include:

- Conduct a Project Risk Assessment
- Change Project Location or Timing
- Get the Budget and Schedule Right
- Plan for a Workforce Shortage
- Attract and Recruit the Best Workers
- Remove Work from the Project Work Site
- Leverage Regional Collaboration
- Alternate Contracting Strategies
- Retain the Best Workers
- Labor Productivity

Safety training for all employees

Skilled workers expect to work safely. Ensure your company has an effective program to eliminate all unsafe conditions and to provide a clean, safe, accident-free environment. This is also a major factor in retaining skilled workers. Specific recommendations for an effective safety program are included in the CURT Owner Safety Blueprint, which includes a comprehensive program for eliminating accidents on construction projects for owners and contractors.

These effective programs are the most important thing to be done. Make sure that all new or less experienced employees receive the proper amount of safety training. This will go a long way in preventing accidents and keeping your workers safe. Make sure workers know what types of unsafe things to look for that experience will teach them to avoid. Have more experienced crew members talk to them about common problems they may overlook. Make sure everyone on your crew knows their limits, and can tell when they're getting dehydrated and need to take a break. Overall make sure that you stress the importance of safety, and that getting the job done safely supercedes getting it done quickly.



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Integrate safety into work processes

To achieve an incident- and injury-free workplace, owners and contractors must evaluate all work processes and activities from a safety standpoint and assess risk at every level. This involves investigating, tracking, trending, and learning from near misses, thus promoting continuous improvement. In every aspect, the workplace must prove that safety is not just another item on a list of things to accomplish — it is the very manner in which things get done.

Establish a safety culture

A safety culture doesn't happen unless intentionally pursued. A safety culture must be formed and given time to take root. At the latest, this should start on the first day the project team is established, and possibly even before that through the actions and expectations of the construction owner. Management participation in safety is not a spectator sport. Owners must not only be engaged but also engaged early in establishing a positive safety culture and one of the key ways to establish a safety culture for a project is through effective contracting. When the contract is carefully developed, the safety culture can start to take hold and be reflected in every project activity. Safety culture requirements should be established in all key phases of contracting.



Other Resources

We've only discussed a few of the key ways to identify the potential for accidents along with some solutions to prevent them. Yet there are several other resources to review and integrate into your construction program.

We encourage you to access and employ these resources now. Click the links below.

- [CURT Owners' Safety Blueprint](#)
- [Construction Labor Market Analyzer®](#)
- [Labor Shortage Risk Mitigation White Paper](#)
- [Construction Risk Availability Forecasting Tool](#)
- [The ROI of Craft Labor Training](#)

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