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## CONSTRUCTION BEST PRACTICES

# Why Safety in Design Should Lead Every Project

TOO OFTEN, safety on construction sites is treated as a field problem managed after work begins. By then, many of the most significant risks are already built into the job. Safety in design flips that approach by identifying and eliminating hazards before ground is ever broken.

Safety in design is a proactive process that integrates safety into the earliest stages of planning, engineering and layout. The goal is simple: to remove or reduce risks at their source rather than relying solely on protective equipment, procedures or workarounds later. For construction executives, design safety can mean fewer injuries, lower costs and smoother project delivery.

This approach requires project teams to think through how a structure will be built, used, maintained and eventually demolished — and address hazards at each stage. That means involving safety professionals, engineers and operations personnel so risks can be engineered out rather than managed in the field.

- **Fewer incidents and disruptions:** Eliminating risks upfront reduces the likelihood of accidents that halt work and injure workers or third parties.
- **Improved productivity:** Safer, better-designed work sites are more efficient and easier to navigate.
- **Reduced insurance and liability exposure:** Fewer claims and stronger safety records can improve underwriting outcomes.

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## How design decisions reduce risk

Many of the most effective safety improvements are straightforward design choices made early in a project. Each of these decisions removes a hazard before it reaches the job site, reducing reliance on administrative controls or worker behavior to stay safe:

- Add roof parapets or guardrails to reduce fall risks and limit the need for active fall protection systems.
- Relocate rooftop equipment to ground level to eliminate work at height during maintenance.
- Design site layouts to separate pedestrian and vehicle traffic and improve equipment flow.
- Ensure adequate space for safety equipment like eyewash stations and spill kits.
- Plan access for safe removal and replacement of heavy equipment like generators.

## A gap between design and construction

Despite its benefits, safety in design has historically been underutilized in the U.S. Designers often distance themselves from construction-phase safety due to limited training in safety practices and concerns about increased liability.

That disconnect creates risk. Designers ultimately dictate how a project is built, including the materials and assembly methods used, yet they are often not directly involved in construction safety planning.

Design-build firms tend to perform better in this area. Designers and builders work within the same organization, so they can collaborate more effectively.

Construction teams flag safety concerns during design, and those lessons carry forward into future projects.

Companies working with outside design firms should insist on similar collaboration.

Owners and contractors should consider bringing designers together with construction managers and safety teams to review risks and identify safer alternatives.

## Why early involvement pays off

- **Lower total project costs:** Addressing hazards early avoids costly redesigns, delays and injury-related expenses.



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## COMMERCIAL PROPERTY OWNER SURVEY

# Disasters, Weather Damage Ranked Top Concern

COMMERCIAL PROPERTY owners rank the threat of severe weather and natural catastrophes as their primary risk but are confident in their buildings' ability to stand up to damage from such events, according to a new survey.

The property owners said their worries about heat waves, flooding and damaging winds mainly concern business interruption, water intrusion and structural damage, according to the "Commercial Lines Protection Survey" by Nationwide Insurance. But while they have taken steps to mitigate against weather-related risks, and despite feeling confident in the structural integrity of their properties, most of them reported feeling unprepared to handle these events.

Half of property owners reported that their facilities had been damaged by a natural disaster in the past five years. But those figures were higher for owners of buildings in states susceptible to convective storms (61%) and in hurricane-prone states: 56%.

## Ranking business risks

Here's how property owners ranked various risks they face:

- Severe weather/natural disasters: 61%
- Labor shortages or higher labor costs: 53%
- Supply-chain disruptions: 45%
- Water damage: 41%
- Government regulations or zoning changes: 35%
- Fire damage: 26%
- Cyber security threats/data breaches: 24%
- Crime/theft: 13%

## How firms are mitigating risk

- Purchasing backup generators
- Adding extra bracing for severe winds
- Installing storm shutters or impact-resistant doors and windows
- Building drainage systems
- Installing storm-resistant roofing
- Upgrading or repairing property to standards above current code requirements
- Installing electrical system surge protection
- Adding defensible space around the property
- Installing non-combustible roofs and decks
- Installing seismic bracing for sprinkler systems gas appliances
- Installing seismic gas shut-off valves
- Buying additional insurance coverage for natural disaster
- Landscaping or modifying property to manage water drainage, such as installing berms or gutters

## Insurance

More than eight in 10 say they feel well protected against severe weather losses, but only 39% say they feel fully protected. Two in five owners believe commercial property insurance affordability has improved over the last year, yet 60% are interested in finding ways to cut their property insurance premiums by:

- Bundling policies (84%)
- Asking their broker to get more quotes from competing carriers (77%)
- Asking their agent about ways to reduce their costs (53%)
- Raising deductibles to reduce premiums (37%)
- Opting out of optional coverages (29%)
- Reducing coverage limits (26%)

## The takeaway

As natural catastrophes grow in number and scope, more properties around the country are susceptible this growing risk. As well, property owners face a number of other risks they are to protect their properties against. Water damage continues to be a serious claims driver.



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## Many Project Owners Now Expect Bids to Include Safety Plans

- **Stronger competitive position:** Many project owners now expect documented safety plans as part of bids.

### A shift that is gaining momentum

Safety expert Georgi Popov notes that historically, most safety efforts have focused on the operational phase of projects. In an interview with *Construction Dive*, he said that is changing as more

organizations recognize the value of early intervention.

"Our goal is to manage risk throughout the life cycle of a system or building, starting with the design concept," Popov said, adding that earlier involvement helps eliminate embedded risks before they reach the field.

In short, projects are safer when they are designed that way from the start.

## INDUSTRIAL ACCIDENTS

# Tool Safety Can Avoid Amputations, Worse

WHILE TOOLS used in construction, agriculture, manufacturing and other industries make workers' lives easier, they can also pose a danger of injury or death if used incorrectly or if they malfunction, to the worker using the tool, co-workers and the public.

Injured workers may suffer pain, recovery challenges and the possibility that they may be unable to return to work, while your

company could face OSHA fines and higher workers' compensation premiums. If a third party is injured, buckle up for the inevitable lawsuit, which can explode into a multi-million settlement or judgment.

To reduce the chances of these scenarios, employers must train workers to recognize hazards associated with the tools they use and follow procedures necessary to prevent injuries.

## Hand tools

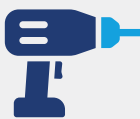
Hand tools include anything from axes to wrenches, and the greatest hazards they pose result from misuse and improper maintenance.

The employer is responsible for the safe condition of tools and equipment used by employees, while workers are responsible for properly using and maintaining their tools. Employees should be trained to report any issues to management so tools can be removed from service or repaired.



## Power tools

Power tools pose significant risks to workers, including cuts, amputations, eye injuries, electric shock and hearing damage, particularly when used improperly or without safeguards. Many incidents stem from inadequate training, lack of maintenance or the removal of safety guards, which can turn routine tasks into serious hazards.



## Guards

Hazardous moving parts of power tools must be safeguarded. For example, if exposed to contact by employees, belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, chains and other reciprocating, rotating or moving parts of equipment must be guarded.

Ensure that all tools with moving parts have guards to prevent workers from contacting them. Employees who use equipment that requires guarding must also avoid wearing loose clothing or jewelry to avoid deadly entanglement.



## Electric tools

Employees using electric tools must be aware of several dangers; the most serious is the possibility of electrocution. Among the chief hazards of electric-



powered tools are burns and slight shocks, which can lead to injuries or even hearing loss.

Even a small amount of current can result in death. Electric shock can also cause the user to fall from a ladder or elevated surface, elevating the risk substantially.

## Powered abrasive wheel tools

Powered abrasive grinding, cutting, polishing and wire buffing wheels create safety problems because they may produce flying fragments.

Workers can protect themselves with proper attire that resists impact from sharp fragments and shielding that protects the hands, neck and face.



## Pneumatic tools

Pneumatic tools are powered by compressed air. Examples include chippers, drills, hammers and sanders, all of which pose several dangers. The main one is the danger of being struck by a tool attachment or a fastener used with the tool.

Powder-actuated pneumatic tools operate like a loaded gun and should be treated with the same precautions. They are so dangerous that they must be operated by specially trained employees.



## Hydraulic power tools

The fluid in hydraulic power tools must be an approved fire-resistant fluid and must retain its operating characteristics at extreme temperatures. Never exceed the recommended operating pressure.

Employees and employers must work together to establish safe working procedures. If there is a hazardous situation, it should be brought to the attention of the appropriate individual immediately.



## A final word

Employers can reduce risks by implementing formal training programs, enforcing the use of personal protective equipment and ensuring that tools are regularly inspected and maintained.

Importantly, workers should inform supervisors if a tool is not working properly, is lagging or has loose parts. Malfunctioning tools must be removed from service and either repaired or replaced.

## TECH ADVANCEMENTS

# How AI Is Changing How Insurers Operate

ARTIFICIAL INTELLIGENCE is rapidly reshaping how property and casualty insurers operate, and commercial insurance buyers may soon see the impact through more responsive service, more accurate pricing and smoother claims handling.

In many cases, AI is helping carriers move faster and make more informed decisions, which can translate into fewer delays and more tailored coverage for businesses. From claims handling, and customer service to risk modeling and underwriting, insurers are turning to AI to boost efficiency and the customer experience.

But, while many of these changes are expected to benefit businesses who purchase insurance, critics worry that AI may discriminate and result in unintended consequences for policyholders and insurers alike.

## How AI is being used

**Claims handling.** AI-powered systems can analyze photos, sensor data and historical claims information in real time to assess damage and estimate losses. That allows insurers to start working on claims more quickly and route them to the right adjusters. In some cases, carriers are reducing claim cycle times significantly and improving accuracy at the same time.

For commercial policyholders, that can mean faster payments and less business interruption after a loss. It also reduces the administrative burden on internal risk management teams that would otherwise need to follow up repeatedly on claim status.

**Underwriting.** AI models can process large volumes of structured and unstructured data, including financials, operational data and external risk indicators, to produce more refined risk assessments. That allows insurers to price policies more precisely and, in some cases, offer coverage for risks that may have been difficult to evaluate using traditional methods.

This can benefit commercial buyers in two ways:

- More competitive pricing that better reflects actual risk
- Coverage options that are more tailored to specific operations or exposures

**Customer service.** Many insurers now use AI-driven chatbots and virtual assistants to handle routine inquiries, provide policy information and guide users through claims submissions. These tools are available around the clock and can resolve issues quickly without human intervention.

**Operational efficiency.** Behind the scenes, AI is streamlining insurers' workflows. Tasks like data entry, document verification and claims routing are increasingly handled by AI systems, reducing errors and speeding up processing times.

For commercial clients, that often translates into fewer delays in policy issuance, endorsements and renewals.

**Fraud detection.** By analyzing patterns across large datasets, AI systems can identify anomalies that may indicate fraudulent claims activity. This helps insurers reduce losses and control costs, which can ultimately stabilize premiums for policyholders.

**Real-time monitoring.** There are also emerging applications tied to connected devices and predictive analytics.

Sensors in buildings, vehicles and equipment can feed real-time data to insurers, allowing them to monitor risks more closely and even help prevent losses before they occur.

For example, smart systems can detect water leaks, equipment failures or unsafe conditions early, giving businesses a chance to act and avoid a damage or injury claim.

## Challenges and takeaway

All that said, concerns remain about data privacy, cyber security and the potential for bias in AI-driven decision-making.

Also, as insurance companies and other businesses continue to pool customer data through AI, they risk inadvertently disclosing sensitive and private information.

As a result, regulators and insurers are increasingly focused on implementing governance frameworks to ensure that AI is used responsibly and transparently.

Companies that understand these changes and work with carriers that use AI effectively may benefit from better service, more accurate underwriting and a more proactive approach to risk management.

