

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 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.

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.
- **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.
- **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.

