

Understanding Serious Injury & Fatalities in the Construction Industry

Learn how SIF frameworks prioritize high-energy hazards and how proactive planning can significantly reduce the likelihood of life-threatening events on construction sites.

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Key Takeaways

- SIF focuses on high-energy hazards such as electrical, gravitational, mechanical, pressure, thermal, and kinetic energies that can cause life-ending injuries.
- Pre-task planning, job hazard analyses, and verifying critical controls are essential steps in preventing SIFs before work begins.
- Empowering workers with stop-work authority and training them to recognize human factors like fatigue and distraction help mitigate risks associated with high-energy hazards.
- Traditional safety programs are shifting toward a proactive, risk-based approach that prioritizes preventing the most severe, low-frequency events.
- Effective SIF prevention involves understanding the energy involved in tasks, verifying controls, and fostering a safety culture that emphasizes decision-making and hazard awareness.



2026 has opened the door to a new focus in the safety world: serious injury and fatalities (SIFs). This acronym is becoming a growing framework, especially in the construction industry. Serious injury and fatalities include risks that can kill or permanently disable someone. The industry has identified that, yes, all risks are important, but certain ones need to take priority.

This leads us to the next question: What would be considered a SIF?

What is an SIF, and what is the thought process behind it?

These serious injuries and fatality risks revolve around one major thing: high-energy hazards. A high-energy hazard is any situation where a large amount of uncontrolled energy could be released and harm a worker. Think of it as this: If something goes wrong here, is it minor, or life-ending?

Let's break down the high-energy hazard types that can lead to SIFs:

- Electrical energy – live wires, arc flash, energized panels
- Gravitational energy – falls from heights, dropped objects
- Mechanical energy – moving machinery, rotating parts
- Pressure energy – hydraulics, compressed gas, steam
- Thermal energy – extreme heat, burns, explosions
- Kinetic energy – vehicles, cranes, heavy equipment

The overarching idea of an SIF is it's not the task, it's the energy behind it that makes it deadly.

Safety oversight is changing from what some may call traditional safety. The old approach treated all hazards somewhat equally, with a focus on incident rates.

Industry leaders are now focusing on low-frequency, high-consequence events. The question being asked now is: What events that occur on site could lead to severe injury or potential death?

The best way to describe this is with an example. A small cut is not considered a SIF, whereas arc flash potential or a 20-ft fall most definitely would be.

SIF prevention

Prevention begins in the planning phase.

1. Identify high-risk tasks before work starts

Most companies or general contractors require things like pre-task planning (PTPs) or job hazard analyses (JHAs) before work begins. These act as task identifiers and outline the risks associated with completing them, specifically flagging work at height, energized electrical work, confined spaces, and heavy lifts.

A crucial step in your JHAs or PTPs is to verify that critical controls will meet, not just listed on paper. Everyone involved in the planning phase needs to ensure SIF risk elimination and prevention tools are in place and maintained throughout the completion of high-risk jobs.

2. Are life-saving controls in place and are they working?

A perfect example would be asking yourself the following questions. Are lockout/tagout (LOTO) procedures verified? Is the power on site truly de-energized, not just assumed to be off? Is your harness being worn correctly and are you tied off properly before you start work at height?

3. Stop work authority

You are encouraged and expected to stop working if certain criteria are met. This comes down to training. If you are performing a task where there are questions or immediate risks to health and safety, work should be stopped. The two most important stop-work triggers to focus on are when a high-energy hazard is not controlled or when conditions change unexpectedly. Something said often within the industry is “no production goal is worth a fatality,” and that holds a lot of truth.

4. Human performance awareness

Many SIF events happen because of the human factor. Mistakes happen when you are rushing, fatigued, overconfident, or miscommunicating. You and your team are now being trained to recognize when you are being distracted. This training focuses on double-checking critical steps, speaking up early, and using real-world examples to see the impact these distractions can have.

Here is an example in the electrical field: Working on a panel assumed to be off, where a hidden live circuit could lead to an arc flash explosion. What’s the SIF prevention hierarchy here?

1. Pre-task review with the building, general contractor, and crew
2. Test before touch (meter test, verify zero energy)
3. Lockout/tagout verification, use of correct device
4. Arc-rated PPE at the right protection level for the work being completed

Safety leaders and engaged business owners are discovering that traditional safety programs are missing the biggest risks. The focus is now shifting to “prevent the one event that changes everything.” This is the simplest way to approach jobs moving forward. Ask yourself the following questions:

- What energy is present?
- What happens if it’s released?
- Will it kill or seriously injure someone?
- Are the critical controls verified?

SIF is changing the safety world because its prevention is about prioritizing what can kill you, not just what can hurt you. The final takeaway of SIF is this: It targets the most dangerous situations, improves decision-making in the field, and shifts safety from reactive to predictive.