

# SIF card definitions

SIF stands for serious injury and fatality. A serious injury is a life-changing event such as a major head injury, a spinal cord injury, amputation, catastrophic fractured bones, and serious burns.

Since employees who do these tasks are most at risk for SIFs, they should be given an active role in completing risk assessments and developing safety policies and procedures.

Job tasks on The Fatal 10 list, especially paired with red-flag situations, are a sign that a closer look is needed to identify gaps and make sure tight prevention measures are in place. This list is not all-inclusive.

Additional information and resources about SIFs can be found on SAIF's SIF resource page.

## The Fatal 10

### Vehicle/equipment operation

Work done around or with vehicles and power-operated mobile equipment, including forklifts and vehicles with electric motors. Motor vehicle, ATVs, and vehicles with electric motors accidents are the number one cause of workplace deaths in the U.S., and strong preventative measures should be in place to prevent them. Examples are regular maintenance, additional safety features in vehicles, and driver safety training.

Resources:

- Safe driving ([saif.com/safedriving](https://saif.com/safedriving))
- Trucking safety ([saif.com/truckingsafety](https://saif.com/truckingsafety))

### Working at heights

Defined as any work completed above four feet. Though there have been significant injuries and fatalities from work at the same height, any work completed over four feet is at an even greater risk. Consider loading docks, roof work, scaffolding, ladder use, and any work at heights no matter the duration.

Resources:

- Construction and maintenance ([saif.com/construction](https://saif.com/construction))
- Ladder safety ([saif.com/ladders](https://saif.com/ladders))

### Workplace violence

Often viewed as shootings, this can also include person-on person contact in settings such as health care and schools. Those working alone, with unstable people, or with money on-site may be at risk. Violence can be acts committed by criminals, but also consider many violent episodes in the workplace are a result of interactions with customers, current or former employees, and personal relationships.

Resources:

- Violence in the workplace ([saif.com/violence](https://saif.com/violence))
- Health care ([saif.com/healthcare](https://saif.com/healthcare))
- Education ([saif.com/education](https://saif.com/education))

### Machine hazards/lockout failures

Includes work on vehicles, electrical work, and machines of all kinds. Think about where employees might need to unjam, clear out, or remove objects or debris from moving parts. Machine guarding should be used on any moving part, anything that twists or could cause hair, clothing, or limbs to be caught, or that cuts. Lockout should be used on any machine where maintenance is being performed.

Resources:

- Operational hazards ([saif.com/ophazards](https://saif.com/ophazards))
- Lockout/tagout ([saif.com/lockout](https://saif.com/lockout))
- Manufacturing ([saif.com/manufacturing](https://saif.com/manufacturing))

### Hazardous materials/environmental exposure

Check safety data sheets and chemical labels for hazards, including health hazards and physical hazards, especially when the signal word "danger" is used. Consider how products are used and the reach of potential exposure (i.e., is the material/chemical used in isolation or sprayed in the open?) This may include chemicals, pesticides, confined space hazards around lack of air, oxygen displacement, and metal fumes.

Resources:

- Heat/cold stress ([saif.com/heatcoldstress](https://saif.com/heatcoldstress))
- Chemical and other health hazards ([saif.com/chemicals](https://saif.com/chemicals))

## Electrical/arc flash hazards

Includes all operations that have potential to involve electricity. Coming in contact with overhead power lines is a significant SIF exposure. Other considerations include lack of GFCI, temporary wiring, path to grounding missing or discontinuous, locating underground conductors, and improper use of equipment. Arc-flash hazards are present when employees work near a power circuit where contact is possible, especially if the circuit is energized, not grounded, or not insulated.

Resources:

- Electrical safety ([saif.com/electrical](https://saif.com/electrical))

## Fire/explosion/hot work

Involves all electric, arc, and flame welding. SIF exposures can be in the form of explosions, radiation, heat, and dangerous fumes and gases. Complete understanding of materials used in hot work is essential to assure proper PPE, ventilation, and separation. Hot work should not be done in areas that are combustible.

Resources:

- Welding ([saif.com/welding](https://saif.com/welding))

## Confined spaces/trenching/engulfment

Confined space is defined as large enough that an employee can enter and perform work, has limited entry and exit, and is not designed for continuous occupancy. A trench is an excavation that is usually defined as more deep than wide and not more than 15 feet wide at the bottom. Protection comes from sloping, shoring, and shielding. Engulfment results when a worker is surrounded and overcome by a granular substance such as soil, sand, gravel, sawdust, seed, grain, or flour. It can also involve a liquid such as water or a chemical.

Resources:

- Confined space ([saif.com/confined](https://saif.com/confined))
- OSM resource ([bit.ly/3ip7qgg](https://bit.ly/3ip7qgg))

## Suspended loads

Any load that is higher than a person is tall or essentially anything that is lifted above ground. Loads can be suspended by forklifts, wheel loaders, overhead booms and cranes. These loads are found on riggings, clings, pallets and various other pieces of equipment. The larger the weight and size of the material lifted, the more hazardous the job.

Resources:

- Logging ([saif.com/logging](https://saif.com/logging))
- "Safety by Design" resource ([bit.ly/34WqKcB](https://bit.ly/34WqKcB))

## Struck by objects and equipment

This could include a moving object striking a worker; a worker striking against an object or equipment; part of a worker's body being squeezed, pinched, or compressed in equipment; being struck or crushed in collapsing structure, equipment, or material. These commonly occur in logging, construction, pivot/wheel lines in agriculture, and manufacturing facilities.

Resources:

- Logging ([saif.com/logging](https://saif.com/logging))
- National Safety Council ([bit.ly/3wXln7Q](https://bit.ly/3wXln7Q))

## Red-flag situations

### Nonroutine work

Jobs and tasks that are performed irregularly or for the first time. Since these tasks and jobs are infrequent or new, it can be difficult to understand all of the injury exposures.

Resources:

- Temp worker ([saif.com/tempworkers](https://saif.com/tempworkers))

### Stressors physical, environmental, etc.

Physical stressors can arise from radiation, noise and overexertion from repetitive movements, sudden motions or prolonged effort. The work environment can cause stress through extreme temperatures, especially combined with high humidity and/or wind. Other environmental hazards could be vapors, fumes, or ingestion or absorption of contaminants.

Resources:

- Promote health topic pages ([saif.com/wellness](https://saif.com/wellness))

### Fatigue

Fatigue can occur from short-term loss of sleep, a long stretch of physical or mental work, or a lengthy period of anxiety or stress. Fatigue may be an issue in workplaces with physically or mentally strenuous work, long work weeks, and late night or early morning hours. Noisy work environments and inadequate lighting can also contribute to fatigue.

Resources:

- Fatigue ([saif.com/sleep](https://saif.com/sleep))

### Production pressures

The pressures of production goals at times result in safety systems being bypassed. For example, when a product gets jammed in a conveyor, the normal process should be to shutdown/lockout and fix. Production pressure requires a quicker, often dangerous solution such as unjamming with a hand or instrument.

Resources:

- Leadership series ([saif.com/leadershipseries](https://saif.com/leadershipseries))

### Inadequate supervision and follow-through

It is important for leaders to be consistent and to lead by example. Examples of inadequate supervision and follow-through might include a recognized condition by a supervisor that is not corrected, absence of guidance or oversight, inconsistent follow-through for safety policies or leaders not following safety policies.

Resources:

- Leadership series ([saif.com/leadershipseries](https://saif.com/leadershipseries))

### Working alone

Jobs that require working alone do not allow for the safeguard that often occurs when working with others – like when an employee is feeling tired or if an unseen hazard arises. In certain situations, a person working alone can raise the risk of workplace violence.

Resources:

- Workplace violence ([saif.com/violence](https://saif.com/violence))

### Inadequate operating procedures, training, and follow-up

Inadequate or no operating procedures on high-risk jobs is a major risk factor as you cannot manage or eliminate a risk until you know what the risk is. Look for job hazard analysis to identify hazards, pre-task planning for work that may change frequently, and hazard inspections, surveys and observations of the work environment. Once hazards are known, effective training and follow-up with employees to ensure understanding is vital.

Resources:

- Supervisors Guide ([saif.com/supervisors](https://saif.com/supervisors))

### Poor equipment or task design

Improperly maintained equipment or poorly designed tasks can fail at the moment a worker most needs it. Consider jobs with inadequate design and maintenance of tasks and equipment, inadequate resources or lack of emergency shutdown procedures. Pay special attention to areas where employees are expected to never make mistakes or where one person is expected to single-handedly control the risk.

Resources:

- NIOSH Prevention through Design ([bit.ly/4jTxA74](https://bit.ly/4jTxA74))

### New employees

New employees are also new to safety hazards and may not recognize warning signals and signs. Even a thorough new employee orientation will not catch everything, so additional care and attention should be turned towards protecting new and temporary employees, especially those working in high-hazard areas.

Resources:

- Temporary workers ([saif.com/tempworkers](https://saif.com/tempworkers))
- Young workers ([saif.com/youngworkers](https://saif.com/youngworkers))

### Lack of engineering controls

Injury prevention that is focused on personal protective equipment (PPE) or policies and training is more likely to fall victim to human error as PPE such as gloves or respirators are often not used correctly and controls such as policies, training and procedures are easily forgotten or bypassed. Aim to use higher level controls that physically protect the employee when a hazard cannot be substituted or eliminated.

Resources:

- Hazard identification and control ([saif.com/hazardid](https://saif.com/hazardid))

## The safety controls

