

# The "Fatal Four" Fact Sheet



Falls



Caught-In or -Between



Struck-By



Electrocution

Every year, thousands of construction workers are hurt—or even killed—while doing their jobs. The sad truth is that most of these tragedies are preventable. The Occupational Safety and Health Administration (OSHA) has identified four major dangers that cause the most deaths in construction. They are known as **"The Fatal Four"**: Falls, caught-in or -between accidents, struck-by incidents, and electrocutions.

Let's break down what these hazards are, how they happen, and most importantly, how to avoid them.

## 1. Falls -The #1 killer on construction sites.

Falls are the leading cause of death in construction. These accidents include workers falling from ladders, scaffolds, rooftops, and into holes or open sides.

### How to stay safe:

- **Use guardrails** around open edges and holes.
  - OSHA requires guardrails for any walking or working surface that is **6 feet or more** above a lower level on construction sites.

- Fall protection (guardrails, safety nets, or personal fall arrest systems) is also required at any height when working over dangerous equipment.

### Summary Table: OSHA Guardrail Requirements

Requirement	Specification
Top rail height	42 inches ± 3 inches above walking/working surfaces.
Midrail height	Midway between top rail and surface (unless wall/parapet is ≥ 21 inches).
Vertical member spacing	No more than 19 inches apart.
Top rail strength	Withstand 200 pounds (downward/outward, within 2 inches of the top edge).
Midrail strength	Withstand 150 pounds (downward/outward).
Minimum top rail height	Must not deflect below 39 inches when loaded.
Surface	Smooth, no snagging or projected hazards.
Toe boards	Required if platform is ≥ 6 feet above the area where people work or pass below.
Special openings	Self-closing gates or offsets at access points.

- **Wear a full-body harness**, also known as a **personal fall arrest system (PFAS)**, connected to a secure anchor point. A PFAS includes an anchorage, connectors, and a full-body harness. Lanyards, deceleration devices, and lifelines may also be part of the system.
  - OSHA requires the use of a PFAS whenever a construction worker is exposed to a fall hazard of **6 feet or more** above a lower level and is not protected by guardrails or safety nets.
  - Special situations include working on leading edges, residential construction, scaffolding without complete guardrails, aerial lifts, or within **6 feet** of an unprotected edge or opening.

Summary Table: OSHA PFAS Requirements	
Requirement	Specification
Trigger height	6 feet or more above the lower level.
Maximum arresting force	1800 pounds.
Maximum free fall distance	6 feet.
Anchorage strength	5,000 pounds per employee or 2x the load impact.
Attachment point	Center of the back, near the shoulders.
Inspection	Before each use, remove if defective.
Training	Required for all exposed employees.
Rescue plan	Must provide prompt rescue after a fall.

- **Secure ladders** and make sure they're in good condition. Never stand on the top rung. Always face the ladder and use the "three points of contact" rule, by keeping either two hands and one foot, or two feet and one hand on the ladder at all times.

- OSHA requires that a ladder or stairway is available at all worker points of access where there is a break in elevation of **19 inches or more** and no ramp, runway, or hoist is accessible.
- Ladders must be kept clear of obstacles and access points must remain unobstructed. If one access point becomes restricted, a second must be provided.

Summary Table: OSHA Ladder Requirements	
Requirement	Specification
Minimum load support	250 pounds per rung/step (fixed ladders); 4x the intended load (wooden ladders).
Side rail spacing	16 inches (fixed); 11.5 inches (portable).
Rung/step spacing	10-14 inches (center to center).
Extension above landing	3 feet (portable ladders).
Fixed ladder clearance (behind)	7 inches.
Maximum height before protection	24 feet (fixed ladders).
Fall protection	Cages/wells/safety devices required on fixed ladders >24 feet; Side rails of through or side-step fixed ladders must extend ≥42 inches above the top landing.
Inspection	Before each use; remove defective ladders.
Use	Only for designated purpose; do not use top step of stepladder.
Training	Required for all users.

- **Use scaffolding safely.** Inspect scaffolds daily and have guardrails or harness systems if you're working **10 feet or more** off the ground.
  - Each scaffold and its components must support, without failure, its own weight and at least four times the maximum intended load.
  - Scaffold platforms and walkways must be at least **18 inches** wide, except where space is limited by site conditions.
  - Platforms must be fully planked or decked, with gaps between planks and uprights not exceeding 1 inch, except where side brackets or odd-shaped structures require a gap up to **9 inches**.

## Real-life reminder:

A worker installing roof panels stepped backward and fell through an unguarded skylight. He died instantly. The site had no guardrails or harnesses. A simple safety net or cover could have saved his life.

**Summary Table:  
OSHA Scaffold Requirements**

Requirement	Specification
Capacity	Support own weight + 4X maximum intended load.
Platform width	Minimum 18 inches.
Platform planking	Fully planked/decked ≤ 1 inch gap (≤9 inches for special cases).
Fall protection	Guardrails or PFAS >10 feet; both on suspended scaffolds.
Guardrail height	38-45 inches (made after Jan. 1, 2000); 36-45 inches (made before Jan. 1, 2000).
Midrails	Installed halfway between toprail and platform.
Toe boards	Required to prevent falling objects.
Access	Safe access required (ladders, stairs, ramps, etc.)
Bracing	Cross bracing required for stability.
Plank overlay	Must extend over their supports by at least 6 inches but not more than 12 inches (for planks ≤10 feet), or 18 inches (for planks >10 feet).
Inspection	By competent person before each shift and after events.
Training	Required for all scaffold users.

## 2. Caught-in or -between accidents: Crushed or trapped

These accidents happen when someone is squeezed, crushed, or pinned between objects. It could be machinery, a collapsing trench, or even a load that falls off a forklift.

### How to stay safe:

- **Use machine guards.** Never remove safety guards from machines. Keep loose clothing away from moving parts.
- **Stay out of unprotected trenches.** Any trench deeper than **5 feet** must have safety systems like trench boxes or sloped walls.
- **Always wear a seat belt** when operating heavy equipment.
- **Never work under suspended loads.** Use strong straps and inspect them before lifting.

- **Keep your work area clean.** Stacked materials can fall and crush you if not secured properly.

### Real-life reminder:

A worker entered a trench that wasn't properly protected. The walls collapsed and buried him. A trench box or proper sloping could have prevented this death.

## 3. Struck-by incidents: When something hits you

Struck-by accidents happen when something hits you. It could be a falling tool, a swinging load, or a moving vehicle. These injuries are often serious, and sometimes deadly.

### How to stay safe:

- **Wear your personal protective equipment (PPE):** hard hat, safety glasses, high-visibility clothing, and steel-toe boots.
- **Be alert around equipment.** Stay out of swing zones, especially near cranes or forklifts.
- **Use nail guns carefully.** Only use tools that have a full sequential trigger (safer than bump triggers) and keep your finger off the trigger when not in use.

- **Communicate with equipment operators.** Use spotters and hand signals when needed.

### Real-life reminder:

A worker walked behind a dump truck that was backing up. The driver couldn't see him, and the backup alarm wasn't working. He was crushed. Always make sure workers are seen and heard, and equipment works properly.

## 4. Electrocutions: Invisible but deadly

Electricity rarely gives second chances. One wrong move can lead to serious burns, shocks, or even death. The risk is especially high around power lines, water, and damaged cords.

### How to stay safe:

- **Assume all wires are live.** Treat all wires as if they are energized unless you have verified otherwise using proper testing equipment or [lockout/tagout procedures](#).
- **Stay at least 10 feet from overhead power lines.** Use a spotter when moving tall equipment.
- **Use ground fault circuit interrupter (GFCI) outlets** in damp or wet areas.
- **Use only qualified workers** to repair electrical tools or wires.
- **Inspect all cords and tools** before use. Never use frayed cords or damaged equipment.

## Real-life reminder:

A worker carrying a metal ladder touched an overhead power line. He was electrocuted on the spot. The crew hadn't checked for wires above the worksite. Always look up before lifting anything tall.

## Bottom line: Safety Is everyone's job

The "Fatal Four" are responsible for most construction deaths—but they're also preventable. Stay alert, speak up, and follow the rules. You're not just protecting yourself. You're protecting your team, your family, and your future.

### Remember:

- Use your gear.
- Check your surroundings.
- Speak up if something doesn't look safe.
- Get trained and stay trained.

Let's make sure everyone goes home safely at the end of the day.



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