



## Safety in Commercial Roofing: Fall Protection

Roofing is one of the most hazardous trades in construction, with fall-related incidents representing the highest risk.

- **Falls from Heights:** Account for over 80% of fatalities in the industry.
- **Roof Edge Exposure:** Unprotected edges are a leading cause of fatalities.
- **Skylights:** Often not properly marked or guarded, creating fall hazards.
- **Electricity:** Overhead power lines near rooftops pose electrocution risks.
- **Extreme Temperatures:** High heat leads to dehydration and reduced focus.

### Top Hazards for Roofers

#### 1. The Hierarchy of Protection

An effective fall protection strategy prioritizes systems from most passive (safest) to most active:

- **Fall Restraint:** Prevents workers from reaching the roof edge altogether by limiting travel distance. This is the preferred method, as it eliminates the possibility of a fall.
- **Fall Arrest (PFAS):** The traditional harness-and-lanyard system. While it does not prevent a fall, it stops the worker before impact with a lower level.

#### 2. The "Hidden" Dangers of PFAS

A harness system is only effective when properly configured. Key considerations include:

- **Swing Falls:** Tying off at an improper angle can result in pendulum-like motion during a fall, increasing the risk of adjacent structures.
- **Total Fall Distance:** A safe clearance typically requires roughly 18.5 feet. On lower roofs, standard lanyards may not deploy quickly enough to prevent ground contact.
- **Suspension Trauma:** After a fall, a worker has about 15–20 minutes before blood pooling in the legs becomes life-threatening. Relief straps are critical to allow the worker to stand and maintain blood while awaiting rescue.

### 3. Specialized Equipment for Roofers

**Self-Retracting Lifelines (SRLs):** Function similarly to a car seatbelt, locking immediately upon a fall. They are vastly superior to traditional rope grabs for low-clearance jobs.

**Temporary Roof Anchors:** Reusable steel plates installed at the ridge or rafters. Proper installation is key – anchors must be secured into trusses or rafters (not just sheathing) using manufacturer-approved fasteners, such as zinc-coated nails.

### 4. Modern Regulatory Shift

Industry standards continue to evolve. Regulatory guidance has moved away from relying solely on **Safety Monitoring Systems** (i.e., designated observers) as a primary control method.

With limited exceptions for low-slope roofs, physical protection - such as guardrails or tie-off systems - is now the expected baseline.

#### I. *The Foundation: OSHA's 6-Foot Rule*

Federal OSHA standards require fall protection for any roofing work performed 6 feet or more above a lower level. While state-specific regulations may introduce minor variations, the 6-foot threshold remains the widely accepted standard across both residential and commercial projects.

#### II. *The Protective Trio: Harnesses, Anchors, and Connectors*

A Personal Fall Arrest System (PFAS) is only as strong as its weakest component. The system consists of the “ABCs”:

- **A – Anchorage:** A secure attachment points capable of supporting at least 5,000 lbs. per worker.
- **B – Body Wear:** A full-body harness that distributes fall forces across the body.
- **C – Connectors:** Lanyards or SRLs that link the worker to the anchor point.

#### III. *Calculating Fall Clearance*

One of the most common mistakes is using a 6-foot lanyard on a 12-foot roof. By the time the lanyard stretches, and the shock absorber deploys, the worker may already have hit the ground. The math for a safe stop typically requires about 18.5 feet of clearance:

- 6 ft (lanyard length) + 3.5 ft (shock absorber deployment) + 5 ft (worker height) + 1 ft (harness stretch/ D-ring shift) + 3 ft (safety factor) = 18.5 ft safety clearance.



#### IV. *Beyond the Harness: Passive Systems*

Whenever feasible, passive systems should be prioritized because they reduce reliance on worker action:

- **Guardrails:** Provide continuous edge protection without requiring tie-off.
- **Warning Lines:** Used on low-slope roofs ( $\leq$  2:12 pitch) to designate safe work zones.
- **Roof Brackets (Slide Guards):** Offer secure footing and help prevent material movement, particularly on steeper slopes.

## V. *The Critical 15 Minutes: Rescue Planning*

Arresting a fall is only part of the equation - timely rescue is essential.

- **Rescue Plan:** Every project must include a clearly defined and practiced rescue procedure.
- **Relief Straps:** Should be standard on all harnesses to mitigate suspension trauma while awaiting retrieval.

## VI. *Inspection: The Pre-Climb Ritual*

Fall protection equipment is exposed to harsh conditions, including UV radiation, debris, and sharp edges. Daily inspection is non-negotiable:

- **Webbing:** Check for fraying, burns, or pulled stitches.
- **Hardware:** Inspect for cracks or distortion in D-rings and carabiners.
- **Impact Indicators:** Any deployed indicator requires immediate removal and disposal of the equipment. (PRO TIP: Most harnesses have a "tag" that rips during a fall.)

## Summary

Fall protection is more than a compliance requirement - it is an investment in the safety and longevity of your workforce. By combining high-quality equipment, proper training, and a strict 100% tie-off policy, contractors can significantly reduce risk and create safer, more sustainable roofing operation.

## Author – Michael Williams Safety & Risk Manager



Michael Williams is the Safety & Risk Manager at Highland Roofing Company, where he leads training, compliance, and incident prevention efforts. With a career in safety dating back to the early 2000s, he brings decades of experience and a strong focus on building a proactive safety culture. Prior to his work in safety, Michael served as an Infantry Team Leader in the U.S. Army. He currently holds OSHA certifications (500, 510, 511) and is a CERTA, RETA, and CPR/AED trainer.