



Third Talk: Roofing Work Safety

Job site example

On June 6, 2011, John, a roofing professional, was working near an unguarded skylight installed on the roof of a one-story commercial building, currently under construction. While installing roofing materials, he came in contact with an unprotected skylight and fell 18 feet to the floor below, fracturing only his right shoulder and rib. **John was extremely lucky!**

Many construction workers die from work activities performed near existing skylights, skylight openings, and other types of roof and/or roof opening hazards. As a result, roofing falls are the leading cause of death(s) on construction work sites. These fatal falls are attributed to: (1) failure to appropriately guard skylights and other existing roof openings, and (2) failure to provide effective fall protection training to workers in **hazard recognition** of serious fall hazards at the job site.

Fall prevention must be provided when working on steep roofs, open-sided floors, landings, or scaffold platforms, etc., whether the work activity is conducted by a general contractor, self-employed contractor, subcontractor or an individual worker.

What are fall hazards?

- Unprotected leading edge work
- Unprotected wall and floor openings
- Hoist areas
- Uncovered holes
- Roof and elevator openings
- Poor working surface integrity

- Unprotected ramps and runways
- Dangerous equipment
- Form work and reinforcing steel
- Excavations, wells and pits

What are the results of a fall hazard?

A fall hazard may result in death (fatality) or serious injuries such as permanent paralysis, blunt trauma to the head, broken bones, fractures, or other internal damage.

How to protect workers from fall hazards:

The most effective way to protect workers from falls is to eliminate the fall hazard. If this is not feasible, the employer is required to use at least one of the following:



Personal Fall Arrest Systems (PFASs), or fall restraints consist of:

- a) **Anchorage** — a fixed and secured point of attachment for lifelines, lanyards, or deceleration devices capable of supporting 5,000 lbs. Sound anchorages include: structural members, but not standpipes, vents, other piping systems and electrical conduit.
- b) **Body Harness** — Straps which may be secured to the body in a manner which will distribute fall arrest forces over the thighs, pelvis, waist, chest and shoulders, with a means to attach to other components of a PFAS.
- c) **Connectors** — Devices used to couple/ connect parts of the PFAS and positioning system devices together, e.g. a carabiner or an integral part of the system such as a dee-ring or buckle (sewn into a body harness) or a locking snap-hook.
- d) **Deceleration Device** — Any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyards, automatic selfretracting lifelines/lanyards, which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.

INSPECTIONS

Daily inspections are required prior to use of PFASs for wear damage, deterioration or other component defect and if observed, the PFAS must be immediately removed from service.

Other forms of fall protection systems include:

- Guardrail Systems – 1926.502(b),
- Safety Net Systems – 1926.502(c),
- Warning Line Systems – 1926.502(f),
- Controlled Access Zones – 1926.502(g),
- Safety Monitor Systems – 1926.502(h), and
- Hole Covers – 1926.502(i).

Fall prevention practices

Who has seen or heard of a worker who sat on a skylight for a break, a drink or a smoke, and then, the skylight breaks, and the worker falls onto the concrete floor below?

Yet we don't even need a skylight to fall through a roof! We can overload a roof with materials and equipment until the structure fails, or we may begin to work on an older roof without first inspecting the underside for signs of damage and/or decay.

What steps do we take to keep us working safely on roofs?

- Use PFASs or other fall protection systems, as per the OSHA Fall Protection standard.
- Train workers in hazard recognition and the OSHA Fall Protection standard to properly identify and understand the severity of fall hazards and certify through a written record.
- Guard or secure covers over holes with materials of sufficient strength, and write "Hole" over the cover upon observing the fall hazard.

- Provide and use safety monitor systems, warning line systems, or controlled access zones, in accord with the OSHA Fall Protection standard.

Personal fall arrest systems

When conducting roofing work, there are many ways to prevent fall hazards. If workers use a Personal Fall Arrest System (PFAS), the employer must provide a full body harness, lanyard and/or lifeline, for each worker, and an anchorage point independent of supporting any other platforms, but capable of supporting 5,000 lbs (22.2kN), per each attached worker. Make sure the PFAS fits the worker, and regularly inspect all fall protection equipment to ensure that it's still in good condition. If workers do not routinely use their PFAS, they may neglect routine daily inspection of their equipment — and when required to use their PFAS, a component part may fail!

Falls are the leading cause of death in the construction industry, and even experienced workers can be hurt and killed in falls. Regularly wear your PFAS, stay connected and tie-off to a proper anchorage point at the job site.

Safety monitor

Workers can use a safety monitor system in conjunction with a warning line system with a low slope roof (4:12 vertical to horizontal, or less), under 50 feet or less in width. The safety monitor must be a competent person and have no other duties that could interfere with their responsibility. They are required to work on the same level as the work being performed, and close enough to workers for direct monitoring (visual) and for verbal communication.

LET'S DISCUSS FALL PROTECTION!

1. Have you received training in OSHA's Fall Protection standard?
2. Construction work at what level(s) require fall protection?
3. What conditions may lead to falls through a skylight, hole or over a ramp?
4. Is there a need to use fall protection at your job site?
5. What should the employer do to ensure that your job sites are free of unidentified fall hazards?
6. What OSHA standard applies?

Suggested Questions for your Toolbox Talks

- How could John's fall have been prevented?
- What is the leading cause of death in the construction industry?
- What fall protection systems are we using on this job site?
- How often should your fall protection system be inspected?
- What should you do if you find defects with the fall protection system?
- What are some of the roofing fall hazards on this job site?
- How do we protect holes and skylights on this job site?

OSHA Educational Materials and Resources

The following OSHA Fall Prevention publications are provided in this *Fall Prevention Training Guide*.

- Fall Prevention Fact Sheet, OSHA 3533 – English
- Una hoja informativa—Prevención contra caídas, OSHA 3534 – Español
- Fall Prevention Wallet Card, OSHA 3557 – English
- Tarjeta sobre la prevención contra caídas, OSHA 3564 – Español
- Cartão de prevenção contra quedas, OSHA 3664 – Portuguese
- Fall Prevention Poster, OSHA 3531 – English
- Prevención de caídas—Cartel, OSHA 3532 – Español
- Falling Off Ladders Can Kill: Use Them Safely Booklet/Las caídas desde escaleras pueden ser mortales: Úselas de forma segura, OSHA 3625 – English/Español

Other OSHA publications:

Many OSHA publications are available in both English and Spanish, as well as Portuguese, Russian and other languages. To order multiple copies of these resources, call OSHA's office of communications at (202) 693-1999 or visit OSHA's Publications page at www.osha.gov/publications.

Adobe Reader is required to view PDF files.

Prevention Videos (v-Tools)

Videos are an effective educational tool. We have several workplace training videos based on true stories that are available online at www.osha.gov/stopfalls. The videos examine how falls lead to death and how these fatal falls could have been prevented.

These training tools (v-Tools) support why using the right type of fall protection equipment will enable workers to go home the same way they came to work that day.

You can download the following videos, view the transcripts or view them on YouTube:

Falls in Construction

- Floor Openings
- Fixed Scaffolds
- Bridge Decking
- Reroofing
- Leading Edge Work

The American Road & Transportation Builders Association's (ARTBA) membership includes private and public sector members that are involved in the planning, designing, construction and maintenance of the nation's roadways, waterways, bridges, ports, airports, rail and transit systems. Our industry generates more than \$380 billion annually in U.S. economic activity and sustains more than 3.3 million American jobs.

NSC Construction & Utilities Division is comprised of leading professionals and subject matter experts in this field. Thanks to these authorities, the National Safety Council can further its mission of eliminating preventable deaths at work, in homes and communities, and on the road. To learn more or join an NSC Division, visit nsc.org/divisions.