Safety

Workplace Fall Protection: How to Use a Safety Harness and Lanyard

Roland Jones | Nov 21, 2024

When employees are working high above the ground, a single misstep can be a life-or-death situation.

That risk is one of the reasons that fall protection rules figure prominently in the Occupational Safety and Health Administration's annual ***top 10 list of safety violations***, meant to spur employers to correct recurring problems.

Fall-related injuries, in fact, dominate the national tally of nonfatal emergency room visits, representing 35 percent of preventable injuries in the U.S., according to ***the National Safety Council's Injury Facts website***.

Adequate training and taking sufficient measures to prevent falls are key to preventing such accidents on the job.

"Passive" approaches to fall protection, which don't require effort from workers, include guardrail systems, safety nets and edge protection.

A more active tactic is a personal fall arrest system (PFAS), commonly described as a "tied off" system because it includes a full-body harness and a shock-absorbing lanyard or lifeline secured to an anchor point.

Need fall protection training? MSC offers it. Click here to find out more.

All workers should receive training by a competent person on how to correctly use a PFAS, as well as the fall hazards they will face. Those who have never worn or used a full-body harness before—or have not received training on how to use one correctly—are at risk, given that improper use can lead to a serious injury.

To avoid fall accidents, follow these six steps to properly fit your full-body harness:

Follow These Six Steps to Stay Safe

How to Put On a Full-Body Safety Harness

A full-body safety harness is a vital part of a personal fall arrest system (PFAS). Follow these six steps to understand how to properly fit and use one:

1 Inspect the harness.

Are the buckles and other hardware firmly attached to the straps? Are there any exposed buckle springs that could become loose under pressure? Look out for a harness that is cut or damaged in any way. A weakened or damaged strap could mean the harness will not hold you in the event of a fall.

2 Put the harness on.

Open all the buckles and straps (and belt if the harness has one). Slip the straps over your shoulders and position the D-ring between your shoulder blades. The D-ring should be big enough for the appropriate lanyard to be attached to the harness. A correctly positioned D-ring will ensure you are suspended upright if you fall.

3 Connect and tighten the leg straps.

Place one end of one leg strap between your legs and secure it to the opposite end. Do the same for the other leg. The fit should be tight but shouldn't prevent you from standing up straight (you should be able to place your hand between your thigh and the strap). Next, connect the belt (if the harness has one).

4 Buckle and adjust the harness.

Buckle the chest strap and adjust the fit so that the strap goes across the middle of your chest. Adjust the chest and shoulder straps so that they are snug and the harness stays in place if you fall head-first (if the chest strap is loose it could wrap around the user's neck during a fall).

5 Understand common buckle types.

- Tongue buckles: The webbing goes through the buckle, then insert the tongue through the grommet.
- Parachute buckles: The webbing goes under the buckle and over the roller, and then down between the roller and frame. Pull the webbing to tighten. The end of the webbing should go at least 3 inches past the buckle.
- Pass-style buckles: The male buckle goes through the female buckle. Pull the webbing to tighten.
- Quick-connect buckles: The buckle tab goes into the receptor until you hear a click.

6 Make any adjustments.

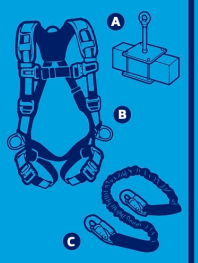
After connecting all the buckles, make sure the harness is snug but not too restrictive. It's about right if you can place a hand under the webbing and make a fist and not pull it out too easily. Tuck away any strap ends so they don't get caught on equipment.

The ABCs of PFAS

A is for "anchor point" (or tie-off point): a secure point of attachment for the fall arrest system's lanyard or lifeline.

B is for "body harness" (or full-body harness). These harnesses have shoulder and thigh straps and a D-ring at the back. They distribute the force of a fall, cutting the chance of bodily injury.

C is for "connecting device": a lifeline or shock-absorbing lanyard that connects the full-body harness to the anchor point.



For more on PFAS, consult OSHA standard 1915.159

To Calculate Fall Distance

Add up the following:

DD + HH + C = RD

- **DD** — Deceleration Distance
- **HH** — Height of Suspended Worker
- **C** — Clearance of Obstruction During Fall Arrest
- **RD** — Required Distance Below Anchor Point to Nearest Obstruction

SOURCES: Occupational Safety and Health Administration, International Safety Equipment Association, Honeywell Industrial Safety

In addition to understanding how to don a safety harness, workers who are using a PFAS should understand the following:

Using a Safety Lanyard

A safety lanyard, or short length of webbing or cable, typically attaches to the D-ring of a worker's safety harness and can have a shock-absorbing feature or simply be attached as a lifeline.

When selecting a lanyard, it's important to know your fall clearance, or the distance required for safety equipment to stop you from striking the nearest obstruction below the work surface.

To calculate your fall clearance from a rigid anchor point, you'll need to consider factors such as deceleration distance, your height, the length of your lanyard and the distance to any obstruction. Learn ***how to calculate fall distance here***.

Read more: Working in Confined Spaces: 5 Vital Safety Procedures for Your Employees

OSHA Fall Protection: Using an Anchor Point

According to OSHA, anchors used for attachment of personal fall arrest equipment must be independent of any anchors used to support or suspend platforms. They should also be capable of "supporting at least 5,000 pounds" per employee attached.

Unless you use an engineered anchor point, such as a device manufactured for fall protection, the selection of an anchor point should be done "under the direction and supervision of a qualified person," OSHA says.

Setting Up a Fall Protection Plan

To set up an effective fall safety plan, employers must consider a variety of factors:

- **Determining what types of training you need:** Not only does every workplace have different hazards, those hazards vary by employee role, experience and responsibility. Four distinct levels of safety training include programs for awareness, authorized users, competent persons and qualified persons, and your shop will likely require some if not all.
- **Identifying and eliminating hazards:** Don't wait until accidents happen to take action. Consider hiring an engineer to identify hazards and remove them before training employees to handle the ones that are inherent in their jobs and can't be eliminated.
- **Choose the proper fall protection trainer:** The qualifications you'll need to look for may vary depending on your industry and the state or region where you operate. State safety officials may be able to make a recommendation, and the National Safety Council offers ***online training tools***.
- **Document slips, trips and falls:** OSHA requires employers to keep a record of serious injuries and illnesses, and complying not only helps to avoid citations but also enables businesses to identify physical hazards as well as risky behaviors, a first step in addressing them.
- **Decide how frequently you should offer training:** OSHA considers employees trained after completion of an initial program, but the American National Standards Institute, or ANSI, ***recommends*** refresher courses at least every two years.

Tips to Amplify Your Fall Protection Plan

Here's a collection of our best articles on fall prevention and safety:

How to Mitigate Suspension Trauma and Bolster Fall Safety

Ladder Safety Tips: What You Need to Know to Protect Your Workers

How to Choose the Right PPE: Fall Protection Harness

5 Things About Fall Protection You Need to Think About

Fall Protection Spotlight: Safety Railings and OSHA Guardrail Requirements

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How do you make sure employees take fall protection seriously? Tell us in the comments below.

