Safety

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

Roland Jones | Nov 27, 2020

Employees working at 4 feet or higher in general industry—and 6 feet or higher in construction—are at risk of serious injury or even death if they fall, according to the Occupational Safety and Health Administration. To protect them, employers must provide the correct protection. Here's what you need to know about using safety harnesses and lanyards correctly.

Working at height is an unavoidable part of some jobs. And even though there are rules and safety regulations to prevent falls, every employer should make sure their employees are using their personal protective equipment (PPE) properly. After all, just one misstep could cost an employee who is not properly protected or trained his or her life.

It's little wonder, then, that fall protection—in construction, from ladders or from scaffolding, or missed fall protection training requirements—feature prominently in the ***top 10 list of safety violations*** issued by the Occupational Safety and Health Administration (OSHA). OSHA publishes the list to prompt employers to take steps to fix these commonly cited issues.

> **"Those who have never worn or used a full-body harness before—or have not received training in how to use one correctly—are at risk, given that improper use can lead to a serious injury."**

While workplace falls are all too common, they're also preventable. The national tally of nonfatal emergency room visits is dominated by fall-related injuries, representing 32 percent of all preventable nonfatal injuries in the U.S., according to ***the National Safety Council's Injury Facts website***.

Read more: Safety Tips for CNC Machinists: 5 Must-Know Rules for the Workplace

Adequate training and taking sufficient measures to prevent falls are key.

"Passive" approaches to fall protection do not require participation from the worker (guardrail systems, safety nets and edge protection). An "active" fall protection system, such as a personal fall arrest system (PFAS), is a system that is said to be "tied-off," in that it includes a full-body harness and a shock-absorbing lanyard or lifeline secured to an anchor point.

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 in 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.

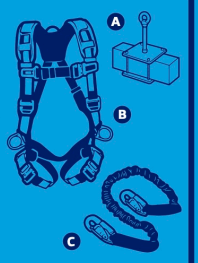
After connecting all the buckles, make sure the harness is snug but not too restrictive. It's about right if you can place a hand under the webbing and make a fist and not pull it out too easily. Tuck away any strap ends so they don't get caught on equipment.

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 use a safety harness, workers who are using a PFAS should understand the following:

Using a Safety Lanyard

A safety lanyard is a worker's link to a fall protection anchor point. This 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 is attached as a lifeline.

When selecting a lanyard it's important to know your fall clearance distance, or the distance required to prevent someone who falls from coming into contact with the nearest obstruction below the work surface.

To calculate your fall distance from a rigid anchor point add your deceleration distance, the height of the suspended worker and the clearance distance to any obstruction during full arrest. 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, "anchorages used for attachment of personal fall arrest equipment shall be independent of any anchorage being used to support or suspend platforms." Those anchorages 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.

Tips to Amplify Your Fall Protection Plan

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

5 Quick Tips for Passive Fall Protection

Fall Protection Spotlight: Safety Railings and OSHA Guardrail Requirements

How are you making sure employees take fall protection seriously? What approaches have you found most successful? Share your thoughts in the comments below.

