



fast facts

advancing safety, health, and workplace rights in the legislative branch

Working From Heights: Fall Protection

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Why it Matters

Falls from heights involving scaffolding, rooftops and ledges are a leading cause of workplace fatalities. Falls that do not result in death are often disabling. According to the Bureau of Labor Statistics (BLS), 700 fatal injuries involving falls occurred in 2008. The numbers for 2009 have that number at over 600 with expectations that it will rise in coming years. Occupational Safety and Health Administration (OSHA) standards 29 CFR §§ 1910.23 and .24(h) require employers in general industry to take specific precautions to protect employees who work from heights of four feet or greater.

Hazard Assessment

Every employer is responsible for conducting hazard assessments. Assessments identify potential hazards that workers are facing and help prepare for adequate fall protection. Things to assess include the following:

- Are stairs, ladders, scaffolding, lifts or baskets needed to access the work area?
- Is there potential for a fall when working at heights of four feet or greater?
- How are workers and others protected from fall hazards and falling objects?
- Does the employee have the proper training needed for the job?
- How much experience does the employee(s) have working from heights using fall protection measures?
- Is the proper Personal Protective Equipment (PPE) available and has it been inspected before the job?

Fall Protection Training

29 CFR § 1910.23(c) requires employers to provide protection systems in the event a fall could occur while working from heights – specifically, when working from any elevated platform. Whenever work from a height of greater than four feet is being conducted, fall protection needs to be addressed first. Fall protection must be incorporated into employer safety programs. A fall protection program should be set up to assist in the protection of employees with a designated, competent person as the primary trainer. This person should train all employees in the following areas if the employees work from heights greater than four feet:

- Recognition of fall hazards in the work area.
- Role of employees in fall protection control measures.
- Overview of the OSHA fall protection standards.
- Inspecting fall protection systems before and after each use.
- Use and operation of fall protection systems.
- Rescue procedures to follow in case of a fall.
- Correct procedures for erecting, maintaining and disassembling fall protection.

Training records should be maintained for each employee with dates of training and signatures, to include the person who conducted the training. Retraining should be conducted if changes in the fall protection policies or procedures occur, or the person trained has demonstrated unsafe practices involving fall protection.

A “safety talk” before each job is a great way to get everyone “thinking safety” and preventing injuries.

Guardrails Are Required

The employer must install guardrail systems where feasible and when fall arrest systems, fall restraint systems, or safety nets are not in place (Fig 1). Guardrails are a first line of defense for fall protection. According to OSHA, the top edge of the guardrails must be between 39 and 45 inches above the walking area, taking into account all circumstances. For example, if an employee is using a step ladder near the railing, the top rail will need to be raised or other fall protection means used while the step ladder is in place. Guardrail systems must be able to withstand a force of 200 pounds without failure. A guardrail system is not required if alternatives such as personal fall restraint systems, fall arrest systems, or safety nets are in place.



Fig. 1: Guardrails along roof edge

Fall Protection Systems – Fall protection systems protect personnel from the risk of falls to a lower level when working at elevated heights. These specific systems should prevent or eliminate falls or control fall hazards to avoid serious injury.



Figure 2: Fall Arrest System

Personal fall arrest system, a system such as a full body harness, attaches to a lanyard then to a lifeline that is connected to a secure anchor point (Fig. 2). Fall arrest devices are designed to stop a fall within a few feet of where the fall starts. Fall arrests with shock absorbers are designed so that if someone does fall, they will not sustain a serious injury as a result of stopping or arresting the fall (Fig. 3).

Positioning system is a system of equipment and connectors that when used with a body harness, allows an employee to be supported on an elevated vertical surface, e.g., a wall or windowsill, keeping both hands free for window cleaners.

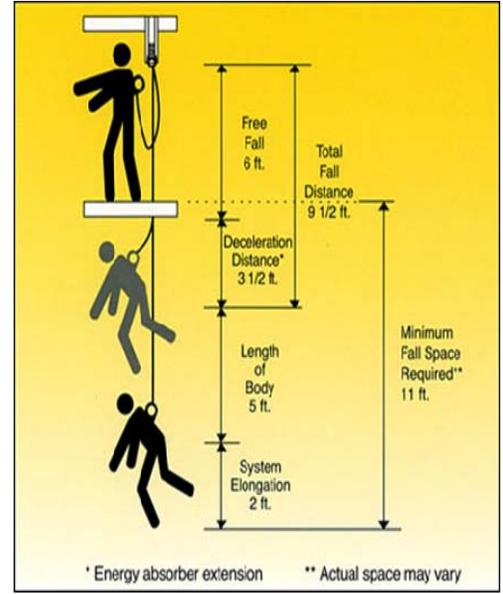


Fig. 3: Example of a fall arrest system



Fig. 4: Anchor Point

Personal fall restraint systems are designed to keep the worker from reaching a fall point, e.g., a roof edge or elevated surface. Anchor points (Fig. 4) attach to a travel restraint (Fig. 5). Employees are able to attach a lifeline to the harness and anchor using locking snap hooks, locking “D” clips or a locking carabiner clip. This device is designed to allow the employee to reach the work area freely without falling over the edge. Several of these anchor points can be affixed along roofs or ledges allowing easy access to any job. Travel restraints consist of a full body harness, lanyard or tether. The lanyard or tether attaches to the anchor point (Fig. 4).



Fig. 5: Fall Restraint System



Fig. 6: Netting doesn't help prevent the fall but keeps the fall from causing serious injury.

Fall Protection Options for Hazardous Exposures

Hazardous exposures include working over/around dangerous equipment, open pit areas, floor or roof openings, open tanks and vats, overhead work, and roof jobs. Guardrails, safety nets (Fig. 6) or personal fall arrests are some of the systems that should be in place to prevent injury. If roof work is being done, a designated area with a warning line system (Fig. 7) could keep workers away from danger. In some cases controlling access to a fall hazard might be the best way to prevent injury. Falls through roofs or floor openings can be easily prevented by covering holes with clearly marked covers. It is important to barricade around holes before removing covers to work. Use appropriate fall protection when working near wall or floor openings (Fig. 8). Highlight all barricaded hazards with signs.



Fig. 7: Warning lines keep workers aware of and away from roof edges.

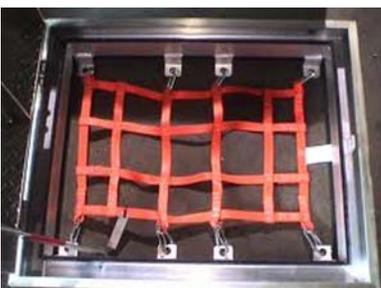


Fig. 8: Net coverings prevent workers from falling to lower level.

Steps to Prevent Falls

At times there is just no way around working from heights. ALWAYS take the extra time to put fall protection controls in place. It could save your life!

Here are some safe steps that can be taken to help reduce your chances of falling:

- Plan ahead when working near unguarded edges, sides, or openings in floors, elevated work platforms, ramps, or runways where there is no guardrail system in place. Use appropriate fall protection equipment properly.
- Keep a safe distance from the edge of the building or elevated working surface.
- Wear a full body harness when required or when working from elevations such as rooftops or elevated platforms greater than four feet.
- If you are using a personal fall arrest system, inspect it regularly.
- If working in a high traffic area, isolate the work area to prevent potential falling objects from striking people below.
- Pay attention to work surfaces for mud, sand, water, or ice.
- Clean up oil, grease, paint, and dirt immediately to prevent slipping.
- Wear safety shoes with nonslip soles.
- Cover all floor and wall openings.
- Always consult a supervisor if you think working from **any** elevated surface is unsafe.

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OSHA & ANSI STANDARDS COVERING FALL PROTECTION

OSHA 29 CFR§ 1910.23	- Guarding Floor and Wall Openings and Holes
OSHA 29 CFR§ 1910.132	- Personal Protective Equipment General Requirements
OSHA 29 CFR§ 1926.500-.503	- Fall Protection
ANSI A1264.1-2007	- Surfaces and their access; Workplace, Floor, Wall and Roof Openings; Stairs and Guardrail systems
ANSI Z359.0-2009	- Definitions and Nomenclature Used for Fall Protection and Fall Arrest
ANSI Z359.1-2007	- Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
ANSI Z359.2-2007	- Minimum Requirements for a Comprehensive Managed Fall Protection Program



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