

PROTECT AGAINST FALLS AND MINIMIZE YOUR LOSSES WITH HELP FROM THE HARTFORD.

FALLS ARE THE LEADING CAUSE OF FATALITIES IN THE CONSTRUCTION INDUSTRY

According to fatality data from the Bureau of Labor Statistics (BLS), falls are the number one cause of construction-worker fatalities, accounting for one-third of all on-the-job deaths in the industry. In 2018, there were 320 fall fatalities out of 1,008 total fatalities in construction.¹ Contractors and workers alike know the hazards posed by falls, yet the danger continues.

REDUCE FALLS AND SAVE LIVES

You can minimize these losses with help from The Hartford. Our Best Practices Program combines our own expertise and industry research to help you reduce your workers' compensation costs.

This Technical Information Paper can help you develop a fall protection program designed to eliminate fall hazards and help make your construction business a safer place to work.



Falls from elevation hazards occur at most construction sites, with many workers exposed to these hazards on a daily basis. Any elevated working or walking surface could be a potential fall hazard.

Protecting construction workers from fall hazards must be an integral component of a contractor's safety and health program in order to prevent fatalities, injuries and other associated losses from falls.

A FALL PROTECTION PLAN IN ACTION



As a contractor, you need to provide adequate fall protection for all personnel at your site throughout the project. The

Occupational Safety and Health Organization (OSHA) requires some sort of protection if the fall exposure is six feet or more, but allows for some exceptions.

The Hartford, however, strongly recommends fall protection at six feet for all operations, including steel erection. A six foot fall protection policy can be achieved using guardrails, horizontal or vertical lifelines, aerial lifts, or other conventional fall protection measures. Consult with your fall protection supplier or manufacturer to help determine the most effective means to protect your workers. As you develop your fall protection program, make sure it includes:

- Management commitment
- Employee involvement
- Work site analysis
- Hazard prevention and control
- Incident investigation
- Enforcement

Assigning a “competent person.”

Before a project even begins, you need to assign safety responsibilities and designate someone at each construction site who can:

- Identify hazards
- Take prompt corrective measures to eliminate them

Management should designate who will act as the “competent person” at each construction site. A competent person is one who’s capable of identifying hazards in the workplace and who has the authority to take prompt corrective measures to eliminate them.

Pre-planning for fall prevention should start at the design phase of the project. For example, you can specify that all stairways be delivered to the site with guardrails attached and require pre-installed anchor points on structural steel and pre-cast concrete.

Once you’ve covered these bases, you need to make sure you have the appropriate fall protection systems in place to keep your employees and visitors safe.

FALL PROTECTION SYSTEMS ON THE JOB

Your primary focus should always be eliminating fall hazards by preventing them with guardrails, hole covers and the like. When that’s not possible, you need to provide fall protection systems, such as a personal fall arrest system (PFAS) or safety nets.

1. Guardrails

Guardrails are the most common – and usually the most effective – fall protection system used on construction sites to protect at openings and on platforms. Guardrails must be continuous, with no portion of the leading edge exposed, and meet the strength requirements.

- Guardrails should be removed only when materials are being on-loaded or off-loaded. Once the materials have been positioned, replace the guardrails immediately.
- Ensure that each top rail, or equivalent member of a guardrail system, can withstand a force of at least 200 pounds. Top rails must be between 39 and 45 inches.
- Make sure that midrails, screens, mesh, intermediate vertical members or panels can withstand a force of at least 150 pounds.
- Whenever stilts are used, the height of the top rail must be increased equal to the stilt height.
- Employees assigned to install or disassemble guardrail systems should be required to use a PFAS.

2. Hole Covers

Any opening that measures at least two inches or more in its least dimension in a floor, roof or walking surface must be covered. Covers should be able to support at least two times the weight that will cross over them. If you use plywood to cover a hole, make sure it’s at least 3/4 inch thick, and secure the cover with screws, nails or wires. Clearly color-code or mark the cover to make sure it’s not removed.

3. Personal Fall Restraint Systems

This system can be a full body harness or a body belt that's rigged to physically restrict the worker from reaching an area where a free fall could occur. It's designed to hold the worker back, but not provide support in a fall. With anchor points capable of supporting 3,000 pounds, these systems are commonly used on leading edge work such as roofs, open-sided floors and work platforms.

4. Safety Net Systems

Safety nets, which catch the worker after a fall, are often found under bridgework, steel erection, demolition and maintenance operations. They should be installed as close as possible under the walking/working surface, but never allow a fall of more than 30 feet. OSHA Standard 1926.502(c) provides details on how far outward nets must extend, and lists regulations for installing, inspecting and replacing safety nets.

5. Positioning Systems

Work positioning systems – typically used in rebar tying and concrete wall-form work – limit free falls to two feet or less. They have anchor points capable of supporting 3,000 pounds, and connecting assemblies must have a minimum tensile strength of 5,000 pounds.

6. Personal Fall Arrest Systems (PFAS)

A PFAS keeps the worker from hitting the ground or other obstructions below. You should use it only when design modifications or fall prevention systems, such as guardrails, aren't feasible.

The PFAS, consisting of a body harness, lifeline and anchorage, must prevent the worker from free-falling more than six feet. The arresting force on the worker must be limited to 1,800 pounds or less, and D-rings and snap hooks must have a minimum tensile strength of 5,000 pounds.

When vertical lifelines are used, each worker must be attached to a separate lifeline. Before assigning a PFAS to a worker, make sure to calculate fall clearance and swing fall hazards to ensure safe use. Factors that determine the required clearance include:

- Anchorage location
- Type and length of the connecting system
- Deceleration distance
- Worker height, and
- An added safety factor

7. Anchorage Points

Fall protection is only as good as its anchorage. The anchor point should limit the fall to the shortest possible distance and be located as close as possible over the employee's head.

Steel members such as I-beams should be used whenever possible, but wood may suffice temporarily if it's been engineer-certified or tested in the field. It's a good idea to require pre-installed anchor points on structural steel and precast concrete and to install perimeter lines on structural members before those members are lifted into place.

RESCUE PROCEDURES SHOULD BE WRITTEN AND PROJECT-SPECIFIC



A worker suspended in a body harness, following a controlled fall, runs the risk of shock and unconsciousness due to venous pooling. Unconsciousness can become life threatening after only a few minutes. Therefore, a written rescue plan is needed to ensure prompt rescue. Consider the following:

- A suspended employee can be given access to safety by means of a ladder, scissor lift, or aerial lift.
- Self-rescue procedures include a block/tackle device or friction device, which slowly lowers an employee.
- Rescue from high-rise buildings often involves the use of a crane and a Stokes basket.

Rescue procedures following a fall should be project-specific and included in your emergency action plan.

✓ INSPECT YOUR SITE

Have your guardrails and hole covers inspected regularly by a competent person. Safety nets should be inspected at least weekly, as well as after any impact with the net. Inspect all components of a PFAS and work-positioning system before each use and remove anything that's defective.

✓ SPREAD THE WORD

During orientation, newcomers to the construction site should learn about:

- All fall hazards present on the site
- When and where fall protection is required
- Proper use, maintenance and inspection of fall protection systems
- The established enforcement program

In addition, those using PFAS should be trained in how to use and maintain that equipment. Make sure to document training with written records. Also be sure to provide retraining when any changes call for it or when an employee doesn't understand the information.

✓ ENFORCE YOUR PROGRAM

In order to maintain a proactive fall protection program, you have to make sure it's enforced at all times. That means:

- **Implementation.** Implementing a written disciplinary/enforcement policy specifically for fall protection.
- **Communication.** Once you have that policy in place, you have to communicate it – to employees during orientation and again periodically.
- **Enforcement.** You have to enforce it fairly among all employees and supervisors.
- **Inspection.** To make sure everyone stays on track, have qualified personnel conduct daily work site inspections to evaluate compliance.

✓ KEEP YOUR EMPLOYEES FALL-SAFE

Fall-related injuries may be prevalent in the construction industry, but that doesn't mean they have to plague your business. Use the information in this Technical Information Paper to create a fall protection program that will help minimize these hazards and help make your operation a safer place to work.

LEARN MORE ABOUT OUR COMMITMENT TO YOUR SAFETY.

Contact your Risk Engineering consultant to access resources 24/7 with policy number at [TheHartford.com/riskengineering](https://www.thehartford.com/riskengineering)



Business Insurance
Employee Benefits
Auto
Home

¹ [https://www.cdc.gov/niosh/construction/stopfalls.html#:~:text=Falls%20are%20the%20number%20one,in%20construction%20\(BLS%20data\)](https://www.cdc.gov/niosh/construction/stopfalls.html#:~:text=Falls%20are%20the%20number%20one,in%20construction%20(BLS%20data))

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