

# National Safety Stand-down to Prevent Falls in Construction

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## **National Safety Stand-down to Prevent Falls in Construction**

Fatalities caused by falls from elevation continue to be a leading cause of death for construction employees. In fact, according to the Bureau of Labor Statistics, falls account for the majority of fatalities in the construction industry. Those deaths are preventable. The National Safety Stand-down raises fall hazard awareness across the country in an effort to stop fall fatalities and injuries.

As an employer, you have a duty to protect your workers from falls, and we're here to help. We have developed this toolkit to arm you with the information and resources you need to conduct a successful safety stand-down. In this toolkit you will find information about the National Safety Stand-down, toolbox talks to help prevent falls, a Construction Industry Fall Protection Safety Program, posters to help bring awareness to the stand-down and much more.

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## National Safety Stand-down to Prevent Falls in Construction

### Frequently Asked Questions

#### What is a safety stand-down?

A safety stand-down is a voluntary event for employers to talk directly to employees about safety. The National Safety Stand-down to Prevent Falls in Construction focuses on fall hazards and reinforcing the importance of fall prevention.

#### When is the National Safety Stand-down to Prevent Falls in Construction?

The stand-down will be held over one week, from May 2-6, 2022.

#### How do businesses conduct a safety stand-down?

Companies can conduct a safety stand-down by taking a break to have a toolbox talk or another safety activity such as conducting safety equipment inspections, developing rescue plans or discussing job-specific hazards. A safety stand-down should provide an opportunity for employers and employees to talk about hazards, protective methods and the company's safety policies, goals and expectations.

#### Who can participate in a safety stand-down?

Anyone interested in educating employees in fall hazards, or other job hazards, can participate. In past years, participants included general contractors; sub-and independent contractors; employers' trade associations; federal, state and local governmental agencies; professional societies and institutes; and consumer/labor-management interest organizations. Millions of employees across all 50 states and internationally have participated in previous stand-downs.

How does a business participate, and how do they get a certificate of participation?

Participation is easy. Hold a stand-down and visit the OSHA [National Safety Stand-down](#) website to download a certificate. Employers will be able to provide feedback and download certificates of participation based on their experience. The certificate pages will be available following the stand-down at OSHA's [Stop Falls Stand-down](#) and on the [National Safety Council's \(NSC\)](#) webpages.

#### Our business received a certificate of participation for past stand-downs, why should we get another one?

One of the most important reasons you should participate is to demonstrate your commitment to fall prevention and other safety issues on the job site to your employees. Employees and other employers alike recognize the importance of demonstrated top-level commitment to promoting a positive safety culture. There are platinum, gold, silver and bronze certificates, depending on how many years you have participated. OSHA and our partners also use the attendance data and feedback from the certificate form submission to enhance and further improve this event for the future.

#### We are not a construction company; can we still participate in the safety stand-down?

Yes, you can. Participation is not limited to the construction industry, and no business is too small to participate. In previous years, many non-construction employers held stand-downs. In fact, the largest

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single participant in 2015 and 2016 was the United States Air Force, reaching more than 1 million military and civilian personnel. The smallest company to receive a certificate had only one employee, and nearly half of certificates for participation completed through OSHA's website were for stand-downs with less than 25 employees.

### **We are a small company with just a few employees; can we still participate in the safety stand-down?**

Yes. Any number of people can hold a stand-down. Companies and businesses of all sizes should take time out during the workday to discuss fall prevention with their employees, and participate in the stand-down. You can also find a larger [stand-down event](#) in your area.

How can we get an OSHA representative to participate in our stand-down?

Contact your [regional stand-down coordinator](#) to talk to someone about your stand-down event.

### **We would like to participate in a safety stand-down event, is there a list we can use to find an event?**

A list of [events](#) in your area can be found by visiting [OSHA's National Safety Stand-down](#) website. These events are free and open to the public. Attendees of these events must cooperate with the host employers' site access and safety rules.

### **How can we get our safety stand-down event listed on the OSHA website?**

OSHA lists [events](#) that are free and open to the public. This webpage helps employers and employees find stand-down events that they can attend in their area. Contact your [regional stand-down coordinator](#) to learn more.

### **Do we need to preregister for the stand-down?**

No. The stand-down is free, and you do not have to register to participate. Simply hold a stand-down with your employees during the week of the National Safety Stand-down to Prevent Falls in Construction, then go online to tell us about your stand-down and download a certificate of participation at OSHA's [Stop Falls Stand-down](#) or [National Safety Council's \(NSC\)](#) webpage after your stand-down event.

### **How long does a typical fall prevention stand-down take to conduct?**

It's up to you. A stand-down could be as simple as a 15-minute toolbox talk or several hours of training over a week.

*Source: OSHA*

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## National Safety Stand-down to Prevent Falls in Construction

### Ways to Prepare for a Successful Stand-down

1. **Try to start early.** Designate a coordinator to organize the stand-down. If you have multiple work sites, identify the team that will lead the stand-down at each site.
2. **Think about asking your subcontractors, owners, architects, engineers or others** associated with your project to participate in the stand-down.
3. **Consider reviewing your fall prevention program.** This will help provide a more effective stand-down.
  - a. *What types of falls could happen:*
    - Falls from ladders
    - Falls from a roof
    - Falls from a scaffold
    - Falls down stairs
    - Falls from a structural steel
    - Falls through a floor or roof opening
    - Falls through a fragile roof surface
  - b. *What needs improvement?* Is your program meeting its goals? Are you experiencing fatalities, injuries or near misses? Are employees aware of the company's fall protection procedures?
  - c. *What training have you provided to your employees?* Does it need revision?
  - d. *What equipment have you provided to your employees?* Is better equipment available?
4. **Develop presentations or activities that will meet your needs.** Decide what information will be best for your workplace and employees. The meeting should provide information to employees about hazards, protective methods and the company's safety policies, goals and expectations. Hands-on exercises (e.g., a work site walk-around and equipment checks) can increase retention.
5. **Decide when to hold the stand-down and how long it will last.** Decide if the stand-down will take place over a break, a lunch period or some other time.
6. **Promote the stand-down.** Try to make it interesting to employees. Some employers find that serving snacks increases participation.
7. **Hold your stand-down.** Try to make it positive and interactive. Let employees talk about their experiences and encourage them to make suggestions.
8. **Follow up.** If you learned something that could improve your fall prevention program, consider making changes.

Source: OSHA



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# **Construction Fall Protection Safety Program**

# Fall Protection Safety Program

Effective Date:

Revision Number:

# OSHA

## REFERENCE STANDARD

This program is developed in accordance with provisions as outlined in the OSHA safety standards for OSHA Safety and Health Regulations for Construction (Part 1926), Subpart M: Fall Protection, specifically 29 CFR 1926.500 – Definitions; 29 CFR 1926.501 – Duty to have Fall Protection; 29 CFR 1926.502 – Fall Protection Systems Criteria and Practices; and 29 CFR 1926.503 – Training Requirements.

## PURPOSE

This policy establishes how will enhance safe working conditions at this facility through the establishment fall protection systems.

## SCOPE

This policy applies to all employees and all company contractors, visitors or vendors.

## RESPONSIBILITIES

Senior management will:

- Require the full application and integration of this policy into daily operations, as applicable, in all areas of responsibility and with all direct reports;
- Assess managers and supervisors on their ability to apply this policy in their areas of responsibility; and
- Provide fall protection to affected employees.

The Safety Administrator will administer all aspects of this policy, which includes:

- Maintaining and updating the written program as required;
- Coordinating necessary training for all affected employees;
- Providing necessary technical assistance to managers and supervisors; and
- Periodically assessing the effectiveness of this program and its implementation in all affected areas of the company.

Managers and supervisors will:

- Know how this policy applies to those under their direct control;
- Integrate and enforce the provisions of this policy in their areas of responsibility;
- Periodically audit the effectiveness of this policy in their areas of responsibility;
- Coordinate training for all affected employees;
- Provide appropriate coaching and corrective action when necessary to ensure this policy is fully integrated; and
- Investigate and document all incidents that result in employee injury.

All affected employees will:

- Integrate the provisions of this policy into their daily activities as applicable;
- Follow all training, instructions and directives related to this policy;
- Seek clarification whenever there are questions concerning the application of this policy into daily operations;
- Bring to management’s attention any unsafe or hazardous conditions or practices that may cause injury to themselves or other employees; and
- Report any incident that causes injury to an employee, regardless of its nature.

## POLICY EVALUATIONS AND UPDATES

It is our goal to maintain a safety program that is understandable, effective and that promotes a safe work environment. Any employee can make recommendations for improvement to this program or any other aspect of our safety system. These suggestions should be directed to any member of management, any safety committee member or to the safety administrator.

As a matter of policy, this program will be reviewed on an annual basis by the safety administrator to determine if all aspects still meet the needs of this organization. If there are significant events that take place during the year that indicate the program is less than effective, an immediate evaluation will be conducted and appropriate steps taken to increase the reliability of this plan.

Date of Review	Name of Reviewer	Changes Required Yes or No	Current Revision Number

## DEFINITIONS

The following definitions help to clarify words or phrases found in this policy:

**Anchorage:** A secure point of attachment for lifelines, lanyards or deceleration devices.

**Body belt (safety belt):** A strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.

**Body harness:** Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders with means for attaching it to other components of a personal fall arrest system.

**Buckle:** Any device for holding the body belt or body harness closed around the employee's body.

**Connector:** A device which is used to connect parts of the personal fall arrest system and positioning device systems together. It may be an independent component of the system,

such as a carabineer, or it may be an integral component of part of the system (such as a buckle or D-ring sewn into a body belt or body harness, or a snap hook spliced or sewn to a lanyard or self-retracting lanyard).

**Controlled access zone (CAZ):** An area in which certain work may take place without the use of guardrail systems, personal fall arrest systems or safety net systems, and access to the zone is controlled.

**Dangerous equipment:** Equipment that, as a result of form or function, may be hazardous to employees who fall onto or into such equipment.

**Deceleration device:** Any mechanism (such as a rope grab, rip-stitch lanyard, specially woven lanyard, tearing or deforming lanyards, automatic self-retracting lifelines/lanyards, etc.) 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.

**Deceleration distance:** The additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate.

**Equivalent:** Alternative designs, materials or methods to protect against a hazard which can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

**Failure:** Load refusal, breakage or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

**Free fall:** The act of falling before a personal fall arrest system begins to apply force to arrest the fall.

**Free fall distance:** The vertical displacement of the fall arrest attachment point on the employee's body belt or body harness between onset of the fall and just before the system begins to apply force to arrest the fall.

**Guardrail system:** A barrier erected to prevent employees from falling to lower levels.

**Hole:** A gap or void 2 inches or more in its least dimension, in a floor, roof or other walking/working surface.

**Infeasible:** That it is impossible to perform the construction work using a conventional fall protection system or that it is technologically impossible to use any one of these systems to provide fall protection.

**Lanyard:** A flexible line of rope, wire rope or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline or anchorage.

**Leading edge:** The edge of a floor, roof or formwork for a floor or other walking/working surface which changes location as additional floor, roof, decking or formwork sections are placed, formed or constructed. A leading edge is considered to be an "unprotected side and edge" during periods when it is not actively and continuously under construction.

**Lifeline:** A component consisting of a flexible line for connection to an anchorage at one end to hang vertically, or for connection to anchorages at both ends to stretch horizontally, and which serves as a means for connecting other components of a personal fall arrest system to

the anchorage.

**Low-slope roof:** A roof having a slope less than or equal to 4 in 12 (vertical to horizontal).

**Lower levels:** Those areas or surfaces that an employee can fall onto (for example: ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures or portions thereof).

**Mechanical equipment:** All motor- or human-propelled wheeled equipment used for roofing work, except wheelbarrows and mop carts.

**Opening:** A gap or void—30 inches or more high and 18 inches or more wide—in a wall or partition, through which employees can fall to a lower level.

**Overhand bricklaying and related work:** The process of laying bricks and masonry units such that the surface of the wall to be jointed is on the opposite side of the wall from the mason, requiring the mason to lean over the wall to complete the work.

**Personal fall arrest system:** A system used to arrest (stop) an employee in a fall from a working level. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline or suitable combinations of these. As of January 1, 1998, the use of a body belt for fall arrest is prohibited.

**Positioning device system:** A body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface (such as a wall) and work with both hands free while leaning.

**Rope grab:** A deceleration device, which travels on a lifeline, and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee.

**Roof:** The exterior surface on the top of a building.

**Roofing work:** The hoisting, storage, application and removal of roofing materials and equipment, including related insulation, sheet metal and vapor barrier work, but not including the construction of the roof deck.

**Safety-monitoring system:** A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.

**Self-retracting lifeline/lanyard:** A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under slight tension during normal employee movement, and which, after onset of a fall, automatically locks the drum and arrests the fall.

**Snap hook:** A connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object. There are two types of snap hooks:

- The locking type with a self-closing, self-locking keeper, which remains closed and locked until unlocked and pressed open for connection or disconnection; or
- The non-locking type with a self-closing keeper, which remains closed until pressed open for connection or disconnection. This type may NOT be used as it is prohibited by OSHA regulations.

**Steep roof:** A roof having a slope greater than 4 in 12 (vertical to horizontal).

**Toeboard:** A low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.

**Unprotected sides and edges:** Any side or edge (except at entrances to points of access) of a walking/working surface (for example: floor, roof, ramp or runway) where there is no wall or guardrail system at least 39 inches high.

**Walking/working surface:** Any surface, whether horizontal or vertical, on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employees must be located in order to perform their job duties.

**Warning line system:** A barrier erected on a roof to warn employees that they are approaching an unprotected roof side or edge, and which designates an area in which roofing work may take place without the use of guardrail, body belt, or safety net systems to protect employees in the area.

**Work area:** That portion of a walking/working surface where job duties are being performed.

## FALL HAZARD SURVEY

Prior to implementing fall protection procedures, authorized facility personnel will conduct a fall hazard survey to identify all real or potential fall hazards. Appendix A is the fall hazard survey form that will be completed to evaluate real or potential hazards.

When conducting the fall hazard survey, the person or persons conducting the survey must be familiar with fall hazard definitions and the work environment. When conducting the survey, consideration must also be given for specialized maintenance functions such as cranes, tops of machines and roof work.

The fall hazard survey will identify one or more methods to eliminate or control each identified hazard and will identify the responsible person(s) and completion date(s) for protective measures to be resolved.

Fall hazard survey reports must be revised or re-written whenever there is a change to the task, process, structure or equipment that would render past surveys obsolete.

## TRAINING REQUIREMENTS

must provide a training program for each employee who might be exposed to fall hazards.

Specifically, this training program will enable each employee to **recognize the hazards of falling** and train each employee on the **procedures to follow in order to minimize these hazards**.

The training must be conducted by a competent person qualified in the following areas:

- Nature of fall hazards in the work area;
- Correct procedures for erecting, maintaining, disassembling and inspecting fall protection systems;
- Use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used;

- Role of each employee in the safety monitoring system (if one is used) and in fall protection plans;
- Limitations of the use of mechanical equipment during roofing work on low-slope roofs;
- Correct procedures for equipment and materials handling as well as storage and erection of overhead protection; and
- Role of employees in fall protection plans.

**Certification of Training:** will verify compliance with the training program by preparing a written certification record. The written certification record must contain the name or other identity of the employee trained, the date(s) of the training and the signature of the person who conducted the training. If relies on training conducted by another employer, the certification record shall indicate the date it was determined the prior training was adequate rather than the date of actual training.

**Retraining:** When has reason to believe that any affected employee who has already been trained does not have the understanding and skill required, the employee will be retrained. Circumstances where retraining is required include, but are not limited to, situations where:

- Changes in the workplace render previous training obsolete; or
- Changes in the types of fall protection systems or equipment to be used render previous training obsolete; or
- Inadequacies in an affected employee's knowledge or use of fall protection systems or equipment indicate that the employee has not retained the requisite understanding or skill.

## **DUTY TO HAVE FALL PROTECTION**

provides fall protection systems that protect employees from injury. has determined whether the walking/working surfaces on which its employees are to work have the strength and structural integrity to support employees safely. Employees are allowed to work on those surfaces only when the surfaces have the requisite strength and structural integrity.

Specific fall protection systems are required when employees are working in the **following situations:**

- **Unprotected Sides and Edges** - Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet or more above a lower level must be protected from falling by the use of **guardrail systems, safety net systems or personal fall arrest systems.**
- **Leading Edges** - Each employee who is constructing a leading edge 6 feet or more above lower levels must be protected from falling by **guardrail systems, safety net systems or personal fall arrest systems.**
  - Exception: When demonstrates that it is infeasible or creates a greater hazard to use these systems, the facility may develop and implement a fall protection system which meets the requirements of controlled access zones. (See page 15 of this policy for controlled access zone requirements.)
  - Note: OSHA regulations presume that it is feasible and will not create a greater hazard to implement at least one of the above-listed fall protection systems. OSHA requires that establishes that it is appropriate to implement a fall protection plan which complies with

the regulations for a particular workplace situation, in place of implementing any of those systems. (See page 16 of this policy for fall protection plan requirements.)

- **Hoist Areas** - Each employee in a hoist area must be protected from falling 6 feet or more to lower levels by **guardrail systems or personal fall arrest systems**. If guardrail systems, (or chain, gate, or guardrail) or portions thereof, are removed to facilitate the hoisting operation (for example, during landing of materials), and an employee must lean through the access opening or out over the edge of the access opening (to receive or guide equipment and materials, for example), that employee must be protected from fall hazards by a personal fall arrest system.
- **Holes** - Each employee on walking/working surfaces must be protected from:
  - Falling through holes (including skylights) more than 6 feet above lower levels, by **personal fall arrest systems, covers or guardrail systems** erected around such holes.
  - Tripping in or stepping into or through holes (including skylights) by **covers**.
  - Objects falling through holes (including skylights) by **covers**.
- **Formwork and Reinforcing Steel** - Each employee on the face of formwork or reinforcing steel must be protected from falling 6 feet or more to lower levels by **personal fall arrest systems, safety net systems or positioning device systems**.
- **Ramps, Runways, and Other Walkways** - Each employee on ramps, runways, and other walkways must be protected from falling 6 feet or more to lower levels by **guardrail systems**.
- **Excavations** - Each employee at the edge of an excavation 6 feet or more in depth must be protected from falling by **guardrail systems, fences or barricades** when the excavations are not readily seen because of plant growth or other visual barrier. Each employee at the edge of a well, pit, shaft, and similar excavation 6 feet or more in depth must be protected from falling by guardrail systems, fences, barricades, or covers.
- **Dangerous Equipment** - Each employee less than 6 feet above dangerous equipment must be protected from falling into or onto the dangerous equipment by **guardrail systems or by equipment guards**. Each employee 6 feet or more above dangerous equipment must be protected from fall hazards by **guardrail systems, personal fall arrest systems or safety net systems**.
- **Overhand Bricklaying and Related Work** - Each employee performing overhand bricklaying and related work 6 feet or more above lower levels, must be protected from falling by **guardrail systems, safety net systems or personal fall arrest systems, or must work in a controlled access zone**. Each employee reaching more than 10 inches below the level of the walking/working surface on which they are working, must be protected from falling by a **guardrail system, safety net system or personal fall arrest system**.
- **Roofing Work on Low-slope Roofs** - Each employee engaged in roofing activities on low-slope roofs, with unprotected sides and edges 6 feet or more above lower levels must be protected from falling by **guardrail systems, safety net systems, personal fall arrest systems, or a combination of warning line system and guardrail system, warning line**

**system and safety net system, warning line system and personal fall arrest system, or warning line system and safety monitoring system.** On roofs 50 feet or less in width, the use of a safety monitoring system alone (i.e. without the warning line system) is permitted.

- **Steep Roofs** - Each employee on a steep roof with unprotected sides and edges 6 feet or more above lower levels must be protected from falling by **guardrail systems with toeboards, safety net systems or personal fall arrest systems.**
- **Precast Concrete Erection** - Each employee engaged in the erection of precast concrete members (including, but not limited to the erection of wall panels, columns, beams, and floor and roof "tees") and related operations such as grouting of precast concrete members, who is 6 feet or more above lower levels must be protected from falling by **guardrail systems, safety net systems or personal fall arrest systems,** unless another provision of this program provides for an alternative fall protection measure.
  - Exception: When demonstrates that it is infeasible or creates a greater hazard to use these systems, the facility must develop and implement a fall protection plan. (See page 16 of this policy for fall protection plan requirements.)
  - Note: OSHA regulations presume that it is feasible and will not create a greater hazard to implement at least one of the above-listed fall protection systems. OSHA requires that must establish that it is appropriate to implement a fall protection plan for a particular workplace situation, in place of implementing any of those systems. (See page 16 of this policy for fall protection plan requirements.)
- **Residential Construction** - Each employee engaged in residential construction activities 6 feet or more above lower levels must be protected by a **guardrail system, safety net system or personal fall arrest system** unless another provision of this program provides for an alternative fall protection measure.
  - Note: OSHA regulations presume that it is feasible and will not create a greater hazard to implement at least one of the above-listed fall protection systems. OSHA requires that must establish that it is appropriate to implement a fall protection plan which complies with this policy for a particular workplace situation, in place of implementing any of those systems. (See page 16 of this policy for fall protection plan requirements.)
- **Wall Openings** Each employee working on, at, above, or near wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is 6 feet or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches (1.0 metre) above the walking/working surface, must be protected from falling by the use of a **guardrail system, a safety net system or a personal fall arrest system.**
- **Walking/Working Surfaces Not Otherwise Addressed** – Except as otherwise provided in this program, each employee on a walking/working surface 6 feet or more above lower levels must be protected from falling by a **guardrail system, safety net system or personal fall arrest system.**
- **Protection from Falling Objects** - When an employee is exposed to falling objects, the will enforce that each employee wear a hard hat and must implement one of the following measures:

- Erect toeboards, screens, or guardrail systems to prevent objects from falling from higher levels;
- Erect a canopy structure and keep potential fall objects far enough from the edge of the higher level so that those objects would not go over the edge if they were accidentally displaced; or
- Barricade the area to which objects could fall, prohibit employees from entering the barricaded area, and keep objects that may fall far enough away from the edge of a higher level so that those objects would not go over the edge if they were accidentally displaced.

## Exceptions

This program describes the workplaces, conditions, operations and circumstances for which fall protection must be provided. The following are NOT included and additional fall protection rules and regulations may apply:

- Requirements relating to fall protection for employees working on scaffolds;
- Requirements relating to fall protection for employees working on cranes and derricks;
- Fall protection requirements for employees performing steel erection work (except for towers and tanks);
- Requirements relating to fall protection for employees working on certain types of equipment used in tunneling operations;
- Requirements relating to fall protection for employees engaged in the erection of tanks and communication and broadcast towers;
- Requirements relating to fall protection for employees working from aerial lifts or on poles, towers, or similar structures while engaged in the construction of electric transmission or distribution lines or equipment; and
- Requirements relating to fall protection for employees working on stairways.

If applicable, these requirements are addressed in a separate program or policy.

## FALL PROTECTION SYSTEMS CRITERIA AND PRACTICES

will provide and install all required fall protection systems and will comply with all other requirements before an employee begins the work that necessitates the fall protection.

There are **10 different fall protection systems:**

1. Guardrail systems
2. Safety net systems
3. Personal fall arrest systems
4. Positioning device systems
5. Warning line systems
6. Controlled access zones
7. Controlled monitoring systems
8. Covers
9. Protection from falling objects
10. Fall protection plan

**Guardrail systems** and their use must comply with the following provisions:

- Top edge height of top rails must be **39 to 45 inches** above the walking/working level. When conditions warrant, the height of the top edge may exceed the 45-inch height, provided the guardrail system meets all other applicable criteria. When employees are using stilts, the top edge height of the top rail or equivalent member will be increased an amount equal to the height of the stilts.
- Midrails, screens, mesh, intermediate vertical members or equivalent intermediate structural members must be installed between the top edge of the guardrail system and the walking/working surface when there is no wall or parapet wall **at least 21 inches** high.
  - Midrails, when used, must be installed at a height midway between the top edge of the guardrail system and the walking/working level.
  - Screens and mesh, when used, must extend from the top rail to the walking/working level and along the entire opening between top rail supports.
  - Intermediate members (such as balusters), when used between posts, must be less than 19 inches apart.
  - Other structural members (such as additional midrails and architectural panels) must be installed such that openings in the guardrail system are less than or equal to 19 inches wide.
- Guardrail systems must be capable of withstanding a force of **at least 200 pounds** applied within 2 inches of the top edge, in any outward or downward direction, at any point along the top edge.
- Midrails, screens, mesh, intermediate vertical members, solid panels and equivalent structural members must be capable of withstanding a force of **at least 150 pounds** applied in any downward or outward direction at any point along the midrail or other member.
- Guardrail systems must be so surfaced as to prevent injury to an employee from punctures or lacerations, and to prevent snagging of clothing.
- The ends of all top rails and midrails must not overhang the terminal posts, except where an overhang does not constitute a projection hazard.
- Steel banding and plastic banding must not be used as top rails or midrails.
- Top rails and midrails must be at least **¼-inch** nominal diameter or thickness to prevent cuts and lacerations. If wire rope is used for top rails, it must be flagged at not more than 6-foot intervals with high-visibility material.
- When guardrail systems are used at hoisting areas, a chain, gate or removable guardrail section must be placed across the access opening between guardrail sections when hoisting operations are not taking place.
- When guardrail systems are used at holes, they must be erected on all unprotected sides or edges of the hole.
- When guardrail systems are used around holes used for the passage of materials, the hole must have no more than two sides provided with removable guardrail sections to allow the passage of materials. When the hole is not in use, it must be closed with a cover, or a guardrail system must be provided along all unprotected sides or edges.
- When guardrail systems are used around holes which are used as points of access (such as ladderways), they must be provided with a gate, or be so offset that a person cannot walk directly into the hole.
- Guardrail systems used on ramps and runways must be erected along each unprotected side or edge.

- Manila, plastic or synthetic rope being used for top rails or midrails must be inspected as frequently as necessary to ensure that it meets applicable strength requirements.

**Safety net systems** and their use must comply with the following provisions:

- Safety nets must be installed as close as practicable under the walking/working surface on which employees are working, but no more than **30 feet below** the walking/working surface on which employees are working, at any time. When nets are used on bridges, the potential fall area from the walking/working surface to the net must be unobstructed.
- Safety nets shall extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net	Minimum required horizontal distance of outer edge of net from the edge of the working surface
Up to 5 feet .....	8 feet
More than 5 feet, up to 10 feet .....	10 feet
More than 10 feet .....	13 feet

- Safety nets shall be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to the drop test.
- Safety nets must extend outward from the outermost projection of the work surface.
- Safety nets must be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to the drop test described below.
- Safety nets and their installations must be capable of absorbing an impact force equal to that produced by the drop test described below.
- Generally, safety nets and safety net installations must be drop-tested at the job site after initial installation and before being used as a fall protection system, whenever relocated, after major repair, and at 6-month intervals if left in one place. The **drop test** must consist of a 400-pound bag of sand 30 inches in diameter (give or take 2 inches) dropped into the net from the highest walking/working surface at which employees are exposed to fall hazards, but not from less than 42 inches above that level.
  - Exception: When demonstrates that it is unreasonable to perform the drop test, it must certify that the net and net installation is in compliance with this policy by preparing a certification record prior to the net being used as a fall protection system. The certification record must include an identification of the net and net installation for which the certification record is being prepared, the date that it was determined that the identified net and net installation were in compliance with this policy and the signature of the person making the determination and certification. The most recent certification record for each net and net installation shall be available at the job site for inspection.
- Defective nets must not be used. Safety nets must be inspected at least **once a week** for wear, damage and other deterioration. Defective components must be removed from service. Safety nets must be inspected after any occurrence that could affect the integrity of the safety net system.

- Materials, scrap pieces, equipment and tools which have fallen into the safety net must be removed as soon as possible from the net and at least before the next work shift.
- The maximum size of each safety net mesh opening must not exceed **36 square inches** nor be longer than 6 inches on any side, and the opening, measured center-to-center of mesh ropes or webbing, must not be longer than 6 inches. All mesh crossings must be secured to prevent enlargement of the mesh opening.
- Each safety net (or section of it) must have a border rope for webbing with a minimum breaking strength of **5,000 pounds**.
- Connections between safety net panels must be as strong as integral net components and must be spaced not more than **6 inches** apart.

**Personal fall arrest systems** and their use must **NOT** consist of a body belt and must comply with the following:

- Connectors must be drop-forged, pressed or formed steel, or made of equivalent materials.
- Connectors must have a corrosion-resistant finish, and all surfaces and edges must be smooth to prevent damage to interfacing parts of the system.
- D-rings and snap hooks must have a minimum tensile strength of **5,000 pounds**.
- D-rings and snap hooks must be proof-tested to a minimum tensile load of **3,600 pounds** without cracking, breaking or taking permanent deformation.
- Snap hooks must be sized to be compatible with the member that they are connected to prevent unintentional disengagement of the snap hook by depression of the snap hook keeper by the connected member, or must be a locking-type snap hook designed and used to prevent disengagement of the snap hook by the contact of the snap hook keeper by the connected member. Only locking-type snap hooks must be used.
- Unless the snap hook is a locking type and designed for the following connections, snap hooks shall not be engaged:
  - Directly to webbing, rope or wire rope;
  - To each other;
  - To a D-ring to which another snap hook or other connector is attached;
  - To a horizontal lifeline; or
  - To any object which is incompatibly shaped or dimensioned in relation to the snap hook such that unintentional disengagement could occur by the connected object being able to depress the snap hook keeper and release itself.
- On suspended scaffolds or similar work platforms with horizontal lifelines which may become vertical lifelines, the devices used to connect to a horizontal lifeline must be capable of locking in both directions on the lifeline.
- Horizontal lifelines must be designed, installed and used, under the supervision of a qualified person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two.
- Lanyards and vertical lifelines must have a minimum breaking strength of **5,000 pounds**.
- When vertical lifelines are used, each employee must be attached to a separate lifeline except during the construction of elevator shafts; if two employees are working atop a false car that is equipped with guardrails, both employees may be attached to the same lifeline in the hoistway, provided that the strength of the lifeline is **10,000 pounds** and all other lifeline specifications have been met.
- Lifelines must be protected against being cut or abraded.

- Self-retracting lifelines and lanyards which automatically limit free fall distance **to 2 feet or less** must be capable of sustaining a minimum tensile load of **3,000 pounds** applied to the device with the lifeline or lanyard in the fully extended position.
- Self-retracting lifelines and lanyards which do not limit free fall distance to 2 feet or less, rip-stitch lanyards, and tearing and deforming lanyards must be capable of sustaining a minimum tensile load of **5,000 pounds** applied to the device with the lifeline or lanyard in the fully extended position.
- Ropes and straps (webbing) used in lanyards, lifelines and strength components of body belts and body harnesses must be made from synthetic fibers.
- Anchorages used for attachment of personal fall arrest equipment must be independent of any anchorage being used to support or suspend platforms and capable of supporting at least **5,000 pounds** per employee attached, or must be designed, installed and used as follows:
  - As part of a complete personal fall arrest system which maintains a safety factor of at least two; and
  - Under the supervision of a qualified person.
- Personal fall arrest systems, when stopping a fall, must:
  - Limit maximum arresting force on an employee using a body harness to **1,800 pounds**;
  - Be rigged such that an employee can **neither free fall more than 6 feet**, nor **contact any lower level**;
  - Bring an employee to a complete stop and limit maximum deceleration distance an employee travels to **3½ feet**; and
  - Have sufficient strength to withstand twice the potential impact energy of an employee free falling a distance of 6 feet, or the free fall distance permitted by the system, whichever is less.
  - Note: If the personal fall arrest system meets the criteria and protocols described in 1926 Subpart M App C, and if the system is being used by an employee having a combined person and tool weight of less than 310 pounds, the system will be considered to be in compliance with the personal fall arrest systems provisions. If the system is used by an employee having a combined tool and body weight of **310 pounds or more**, then the employer must appropriately modify the criteria and protocols to provide proper protection for such heavier weights, or the system will not be deemed to be in compliance with the OSHA personal fall arrest systems requirements.
- The attachment point of the body harness must be located in the center of the employee's back, near shoulder level, or above the wearer's head.
- Harnesses and components must be used only for employee protection (as part of a personal fall arrest system or positioning device system) and not to hoist materials.
- Personal fall arrest systems and components subjected to impact loading must be immediately removed from service and must not be used again for employee protection until inspected and determined by a competent person to be undamaged and suitable for reuse.
- will provide for prompt rescue of employees in the event of a fall or must assure that employees are able to rescue themselves.
- Personal fall arrest systems must be inspected prior to each use for wear, damage and other deterioration, and defective components must be removed from service.
- Personal fall arrest systems must not be attached to guardrail systems, nor can they be attached to hoists except as specified in applicable regulations.
- When a personal fall arrest system is used at hoist areas, it must be rigged to allow the movement of the employee only as far as the edge of the walking/working surface.

**Positioning device systems** may include a body belt and the use of such systems must conform to the following provisions:

- Positioning devices must be rigged such that an employee cannot free fall more than **2 feet**.
- Positioning devices must be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall or 3,000 pounds, whichever is greater.
- Connectors must be drop-forged, pressed or formed steel, or made of equivalent materials.
- Connectors must have a corrosion-resistant finish, and all surfaces and edges must be smooth to prevent damage to interfacing parts of this system.
- Connecting assemblies must have a minimum tensile strength of **5,000 pounds**.
- D-rings and snap hooks must be proof-tested to a minimum tensile load of **3,600 pounds** without cracking, breaking or taking permanent deformation.
- Snap hooks must be a locking-type snap hook designed and used to prevent disengagement of the snap hook by the contact of the snap hook keeper by the connected member.
- Positioning device systems must be inspected prior to each use for wear, damage, and other deterioration, and defective components must be removed from service.
- Body belts, harnesses, and components must be used only for employee protection (as part of a positioning device system) and not to hoist materials.

**Warning line systems** and their use must comply with the following provisions:

- The warning line must be erected around all sides of the roof work area.
  - When mechanical equipment is not being used, the warning line must be erected **at least 6 feet** from the roof edge.
  - When mechanical equipment is being used, the warning line must be **erected at least 6 feet** from the roof edge, which is parallel to the direction of mechanical equipment operation, and **at least 10 feet** from the roof edge, which is perpendicular to the direction of mechanical equipment operation.
  - Points of access, materials handling areas, storage areas and hoisting areas must be connected to the work area by an access path formed by two warning lines.
  - When the path to a point of access is not in use, a rope, wire, chain or other barricade, equivalent in strength and height to the warning line, must be placed across the path at the point where the path intersects the warning line erected around the work area, or the path must be offset such that a person cannot walk directly into the work area.
- Warning lines must consist of ropes, wires or chains, and supporting stanchions erected as follows:
  - The rope, wire or chain must be flagged at no more than 6-foot intervals with high-visibility material;
  - The rope, wire or chain must be rigged and supported in such a way that its lowest point (including sag) is at least 34 inches from the walking/working surface and its highest point is no more than 39 inches from the walking/working surface;
  - After being erected, with the rope, wire or chain attached, stanchions must be capable of resisting, without tipping over, a force of **at least 16 pounds** applied horizontally against the stanchion, **30 inches** above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof or platform edge;
  - The rope, wire, or chain must have a minimum tensile strength of **500 pounds**, and after being attached to the stanchions, must be capable of supporting, without breaking, a force of **at least 16 pounds** applied horizontally against the stanchion, **30 inches**

- above the walking/working surface, perpendicular to the warning line, and in the direction of the floor, roof or platform edge; and
- The line must be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.
- Employees are not allowed in the area between a roof edge and a warning line unless the employee is performing roofing work in that area.
- Mechanical equipment on roofs must be used or stored only in areas where employees are protected by a warning line system, guardrail system or personal fall arrest system.

**Controlled access zones** and their use must conform to the following provisions:

- When used to control access to areas where leading edge and other operations are taking place, the controlled access zone must be defined by a control line or by any other means that restricts access.
  - When control lines are used, they must be erected **between 6 and 25 feet** from the unprotected or leading edge, except when erecting precast concrete members.
  - When erecting precast concrete members, the control line must be erected **between 6 and 60 feet or half the length of the member being erected**, whichever is less, from the leading edge.
  - The control line must extend along the entire length of the unprotected or leading edge and must be approximately parallel to the unprotected or leading edge.
  - The control line must be connected on each side to a guardrail system or wall.
- When used to control access to areas where overhand bricklaying and related work are taking place:
  - The controlled access zone must be defined by a control line erected **between 10 and 15 feet** from the working edge.
  - The control line must extend a distance sufficient for the controlled access zone to enclose all employees performing overhand bricklaying and related work at the working edge and must be approximately parallel to the working edge.
  - Additional control lines must be erected at each end to enclose the controlled access zone.
  - Only employees engaged in overhand bricklaying or related work can be permitted in the controlled access zone.
- Control lines must consist of ropes, wires, tapes or equivalent materials, and supporting stanchions as follows:
  - Each line must be flagged or otherwise clearly marked at not more than **6-foot intervals** with high-visibility material.
  - Each line must be rigged and supported in such a way that its lowest point (including sag) is **at least 39 inches** from the walking/working surface and its highest point is **45 inches or less** (50 inches when overhand bricklaying operations are being performed) from the walking/working surface.
  - Each line must have a minimum breaking strength of **200 pounds**.
- On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones must be enlarged, as necessary, to enclose all points of access, material handling areas and storage areas.

- On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work may be removed.

**Safety monitoring systems** and their use must comply with the following provisions:

will designate a competent person to monitor the safety of other employees. A safety monitor must:

- Be competent and able to recognize fall hazards;
  - Warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner;
  - Be on the same walking/working surface and within visual sighting distance of the employee being monitored;
  - Be close enough to communicate orally with the employee; and
  - Not have other responsibilities which could take the monitor's attention from the monitoring function.
- Mechanical equipment must not be used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-slope roofs.
  - No employee, other than an employee engaged in roofing work (on low-sloped roofs) or an employee covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.
  - Each employee working in a controlled access zone must comply promptly with fall hazard warnings from safety monitors.

**Covers** for holes in floors, roofs and other walking/working surfaces covers must meet the following requirements:

- Covers located in roadways and vehicular aisles must be capable of supporting **at least twice** the maximum axle load of the largest vehicle expected to cross over the cover.
- All other covers must be capable of supporting **at least twice** the weight of employees, equipment and materials that may be imposed on the cover at any one time.
- All covers must be secured when installed so as to prevent accidental displacement by the wind, equipment or employees.
- All covers must be color coded or they must be marked with the word "**HOLE**" or "**COVER**" to provide warning of the hazard. This requirement does not apply to cast iron manhole covers or steel grates used on streets or roadways.

**Falling object protection** must comply with the following provisions:

- **Toeboards:** When used as falling object protection, toeboards must be erected along the edge of the overhead walking/working surface for a distance sufficient to protect employees below. They must be capable of withstanding, without failure, a force of at least **50 pounds** applied in any downward or outward direction at any point along the toeboard. Toeboards must be a minimum of **3½ inches** in vertical height from their top edge to the level of the

walking/working surface. They must have no more than a **¼-inch** clearance above the walking/working surface. They must be solid or have openings not over **1 inch** in dimension.

- Where tools, equipment or materials are piled higher than the top edge of a toeboard, paneling or screening must be erected from the walking/working surface or toeboard to the top of a guardrail system's top rail or midrail, for a distance sufficient to protect employees below.
- **Guardrail systems:** When used as falling object protection, must have all openings small enough to prevent passage of potential falling objects.
- **During the performance of overhand bricklaying and related work:** No materials or equipment except masonry and mortar shall be stored within 4 feet of the working edge. Excess mortar, broken or scattered masonry units, and all other materials and debris shall be kept clear from the work area by removal at regular intervals.
- **During the performance of roofing work:** Materials and equipment shall not be stored within 6 feet of a roof edge unless guardrails are erected at the edge. Materials that are piled, grouped or stacked near a roof edge shall be stable and self-supporting.
- **Canopies:** When used as falling object protection, must be strong enough to prevent collapse and to prevent penetration by any objects which may fall onto the canopy.

**Fall protection plans** may be implemented only for employees engaged in leading edge work, precast concrete erection work or residential construction work who can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment. The fall protection plan must conform to the following provisions.

- The fall protection plan must be prepared by a qualified person and developed specifically for the site where the leading edge work, precast concrete work, or residential construction work is being performed and the plan must be maintained up to date.
- Any changes to the fall protection plan must be approved by a qualified person.
- A copy of the fall protection plan with all approved changes must be maintained at the job site.
- The implementation of the fall protection plan must be under the supervision of a competent person.
- The fall protection plan must document the reasons why the use of conventional fall protection systems (guardrail systems, personal fall arrest systems, or safety nets systems) is infeasible or why their use would create a greater hazard.
- The fall protection plan must include a written discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from the conventional fall protection systems.
- The fall protection plan must identify each location where conventional fall protection methods cannot be used.
- Where no other alternative measure has been implemented, will implement a safety monitoring system.
- The fall protection plan must include a statement which provides the name or other method of identification for each employee who is designated to work in controlled access zones. No other employees may enter controlled access zones.
- In the event an employee falls, or some other related, serious incident occurs, will investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed and must implement those changes to prevent similar types of falls or incidents.

## Exceptions

This program describes the requirements for the installation, construction, and proper use of fall protection, **except** as follows:

- Performance requirements for guardrail systems used on scaffolds and performance requirements for falling object protection used on scaffolds;
- Performance requirements for stairways, stair-rail systems and handrails;
- Additional performance requirements for fall arrest and work positioning equipment;
- The erection of tanks and communication and broadcast towers; and
- Criteria for steps, handholds, ladders and grab rails/guardrails/railings.

## **ENFORCEMENT**

Constant awareness of and respect for fall hazards, as well as compliance with these and all other company safety rules, are considered conditions of employment at . The crew supervisor or foreman reserves the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines in this plan.

## **ACCIDENT RESPONSE AND INVESTIGATION**

All incidents that result in injury to workers and near misses, regardless of their nature, must be reported and investigated. When an accident occurs, you must notify management. Management will either promptly rescue injured workers (directly or indirectly through a third party) or provide workers the equipment to rescue themselves.

All incidents will be investigated as soon as possible to identify the cause and means of preventing future occurrences.

In the event of an incident, this Fall Protection Safety Program will be reviewed to determine if additional provisions or practices, procedures or training should be implemented to prevent similar incidents in the future.

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# Employee Safety Talks

# Safety Matters

## Construction

### ABCs of Personal Fall Arrest Systems – Connecting Devices

Working at height can be an extremely dangerous part of your job. Falls are a common form of workplace accidents, so it is important that employees utilize proper protection when working at heights.

When not using rigid fall protection, such as a railing, employees can use personal fall arrest systems for safety. Fall arrest systems are complicated, but generally consist of three different elements: anchorages, body harnesses and connecting devices.

#### "C" is for Connecting Devices

In the ABCs of fall protection, the "C" refers to connecting devices and, when talking about connecting devices, typically we are referring to lanyards.

Lanyards are pieces of equipment used to connect the body harness being worn by a worker to the anchorage that can catch and support their weight in the event of a fall.

When selecting connecting devices, be certain that they are compatible with the other parts of the fall arrest system. Other key points to remember regarding connecting devices include:

- Limit the maximum possible force on a worker to 1,800 pounds.
- Workers should not be able to fall more than 6 feet or contact a lower level before being caught.

- If used, a deceleration device should not extend more than 3 ½ feet.
- Snaphooks must be a locking type and be designed so that they will not disengage.

#### Shock-absorbing Lanyards

One of the most common types of lanyards used in fall arrest systems are shock-absorbing lanyards. This type of connecting device can vary in length and live up to their name in that the lanyard is designed to stretch as it receives the worker's falling weight, allowing the fall to be broken in a controlled and gradual manner. Shock-absorbing lanyards must have one end connected to the D-ring on the body harness and the other to the anchorage; they cannot be connected to each other.

#### Self-retracting Lanyards

Self-retracting lanyards (SRLs) are usually much longer than traditional lanyards and are somewhat unique in how they operate. SRLs allow attached workers to move about freely by extracting more length as necessary. SRLs get their name from the security that the line is not able to become slack and will automatically retract to create consistent, slight tension. In the event that the line is extracted too rapidly, such

as when a worker falls, the lanyard locks in place and does not allow further extension. An SRL may sometimes operate better as a fall prevention device than as a fall arrest system.

#### Positioning Lanyards

Positioning lanyards are fixed in length and are not meant to be used as part of a fall arrest system. They are more suited to keeping workers in place, rather than stopping a fall. Positioning lanyards are often used for tasks such as rebar assembly, pour-in-place concrete walls or while working in boom lifts. They can be made from a variety of different materials, including webbing, cables, ropes or chains.

#### Inspections and Selections

Being certain that your fall arrest system is in good working order is of critical importance, as even a slight defect in just one piece can result in serious injury.

Make sure that you are checking connecting devices before each and every use to find any possible problems. Damaged pieces must be removed from service. When inspecting equipment, keep an eye out for these possible issues:

- Frayed, worn or cut webbing
- Damaged or misshapen hardware
- Missing parts
- Ripped stitching

It is of vital importance that a qualified fall protection individual is involved in the selection of connecting devices and other components of fall arrest systems. Fall protection systems are

only reliable if every single piece is compatible, in good condition and used properly.

#### Our Commitment to You

Your safety is our first priority at . If you have any questions or concerns about connecting devices, personal fall arrest systems or fall protection in general, speak to your supervisor or a qualified fall protection employee

# Safety Matters

## Construction

### Fall Protection Safety

Fall protection and safety is a major concern at construction sites. In fact, OSHA cites injuries from falls as one of its top 10 worksite injuries.

Falls and falling objects can result from unstable working surfaces, ladders that are not safely positioned and misuse of fall protection. Workers are also subject to falls or the dangers of falling objects if sides and edges, floor holes and wall openings are not protected. Any time you are working at a height of six feet or more on the construction site, you must be protected.

#### Unprotected Sides, Wall Openings and Floor Holes

Almost all sites have unprotected sides and edges, wall openings or floor holes at some point during construction. If these sides and openings are not protected, injuries from falls or falling objects may result. Use at least one of the following whenever you are exposed to a fall of six feet or more above a lower level:

- Guardrail systems
- Safety net systems
- Fall arrest systems

#### Additional Safety Precautions

- Cover or guard floor holes promptly after creating them.
- Construct floor hole covers so they will effectively support two times the weight of workers, equipment and materials that may be imposed on the cover at any one time.

- Use fall prevention systems like guardrails rather than protection systems like safety nets or fall arrest devices.

#### Ladders

You also increase your chances of falling if you are using portable ladders that are not safely positioned each time you use them. While you are on a ladder, it may move or slip from its supports. You may also lose your balance while getting on and off an unsteady ladder.

Take the following fall protection measures when using ladders:

- Position portable ladders so side rails extend at least three feet above the landing.
- Secure side rails at the top to a rigid support and use a grab device when a three foot extension is not possible.
- Make sure that the weight on the ladder will not cause it to slip off its support.
- Inspect ladders for cracked, broken or defective parts prior to each use. If a ladder is broken, tag it as defective and remove it from service.
- Don't apply more weight on a ladder than it is designed to support.
- Only use ladders that comply with OSHA standards.

# Safety Matters

## Construction

### Work Site Scaffolding Safety

The majority of scaffold accidents on the construction site are caused by falls, slipping or being struck by an object from above. All of these accidents can be prevented by taking the proper precautions. Here's how.

#### General Safety Tips

- To prevent slipping hazards, conduct a daily routine inspection to ensure all walking and working surfaces are free from potential hazards. If you spot a hazard, remove it.
- Never move, dismantle or alter a scaffold unless under the supervision of a qualified person while doing such activities.
- Never move a scaffold with workers still on it.
- Keep scaffold loads below maximum capacity and remove your equipment when the scaffold is not in use.
- Be alert for bad weather. High winds and driving rain and snow can be dangerous when working at high levels.

#### Protection for Those Below

- Always hoist up heavy tools, equipment and supplies, rather than carry them up by hand.
- There must be a 3½"-high toeboard to prevent things falling off a scaffold. If things on the scaffold are taller than 3½" (above the toeboard) other systems, like

debris nets, must be used to catch falling tools or materials.

- Always wear a hard hat when working on and around a scaffold.
- Never walk under or near the scaffold if roped off when work is being performed above.

#### Fall Protection Basics

To help protect you against potentially deadly falls, fall protection is needed when working 6 feet or more above a lower level, and consists of either a personal fall arrest system or guardrail systems, depending on the job. If using a fall arrest system, keep the following in mind:

- Always attach your lanyard to a vertical lifeline, horizontal lifeline or scaffold structural member.
- If you are using a vertical lifeline, make sure that you are fastened to a fixed safe point of anchorage, independent of the scaffold. This includes structural members of buildings, but not standpipes, vents, electrical conduit, etc. They may give way under the force of a fall.
- Clean and test your gear regularly, and never tamper with your fall protection system.

When working on scaffolding, your safety is our top priority. Make it yours, too!

# Safety Matters

## Construction

### ABCs of Personal Fall Arrest Systems - Anchorages

Falls are a common type of accident in the workplace and can result in serious injuries. As such, it's important to take precautions when working at heights.

Personal fall arrest systems consist of three separate elements—anchorages, body harnesses and connecting devices—which can be remembered by thinking of A, B and C.

#### “A” is for Anchorages

As its name would suggest, an anchorage is an anchor point to which employees working at heights are tethered. Anchorages act as the counterweight to workers should they fall. Therefore, they must be strong and sturdy enough to reliably catch and support the body weight of the attached worker.

OSHA requires that all anchorages be designed, installed and used while under the supervision of a qualified employee. In order to ensure that the equipment can catch and hold a falling worker, anchorages must be able to support two times the expected impacted load or 5,000 pounds for each worker attached to the anchor.

Additionally, the material to which anchorages are attached must also be reliable. Certain building materials may not be strong enough to support an anchorage if a large amount of weight is suddenly applied. As a general rule of thumb, it is best to choose the strongest available material when selecting an anchorage, such as steel.

Some examples of equipment and structures that should never be used as anchorages in a personal fall arrest system include:

- Standard guardrails
- Standard railings
- Ladders/rungs
- Scaffolding
- Light fixtures
- Conduit or plumbing
- Ductwork or pipe vents
- Wiring harnesses
- Rebar
- Lanyards
- Vents
- Fans
- Roof stacks

#### Inspections

Anchorages are critical parts of personal fall arrest systems. If an anchorage is defective or deficient, it can result in serious accidents and injuries. An issue with an anchorage can mean the difference between life and death. If there is ever any doubt that an anchorage can provide the necessary safety, have a qualified individual inspect and evaluate it.

#### Our Commitment to You

If you have any questions or concerns about anchorages or personal fall arrest systems, talk to your supervisor or a qualified fall protection employee.

# Safety Matters

## Construction

### ABCs of Personal Fall Arrest Systems

Falls are some of the most common types of accidents in the workplace. When working at heights, an accident can result in serious injuries. As such, it's important to take precautions and utilize fall protection systems.

Personal fall arrest systems consist of three separate elements that work together to ensure safety by catching falling workers. The three pieces of fall arrest systems include an anchorage, a body harness and connecting devices. Remember them by thinking of systems as having A, B and C.

#### Anchorage

In personal fall arrest systems, anchorages are true to their name in that they act as the fall arrest system's anchor point. Anchorages must be fixed to structurally strong materials, as anchors are not effective if they are attached to weak materials.

Under OSHA standards, a qualified employee is required to oversee the design, installation and utilization of anchorages. Anchorages must be strong enough to support at least double the amount of expected impact load or 5,000 pounds per attached employee. If there is any doubt that an anchorage is safe, a qualified employee should inspect and evaluate it.

#### Body Harnesses

Body harnesses and body belts are not the same thing. Body harnesses provide far more safety than belts. In fact, body belts are not allowed to be used in fall arrest systems and should be used

only as positioning devices. One of the primary advantages of a body harness is that it decreases injury risk when an employee is caught in the midst of a fall, by dispersing the impact across a larger portion of the body as opposed to it all being concentrated around the waist.

In order for a harness to be effective, it must fit properly. Be sure to check your harness every time you put it on, and make sure of a snug fit. While standing up straight, there should be no slack. You should be able to fit an open hand, but not a closed fist, between the strap and your body. Check that the D-ring is centered between your shoulder blades, and be sure to tuck in all straps once they are properly fitted.

#### Connecting Devices

While connecting devices are one of three primary elements that go into a personal fall arrest system, there are many smaller pieces that make up this part of the puzzle. Snaphooks, lanyards, lifelines and deceleration devices are all connecting devices.

When assembling a personal fall arrest system, it is important that all of the connecting devices are the correct choices. When selecting the proper connecting devices, consider the following tips:

- Limit the maximum possible arresting force on an employee to 1,800 pounds.
- Employees should not be able to fall more than 6 feet or contact a lower level before being caught.
- Deceleration devices should not extend more than 3 ½ feet.
- Snaphooks must lock and not be able to disengage from any other connecting device of the system.

### Inspections

Personal fall arrest systems are complicated, so it is imperative that all pieces are inspected before every use. Do not use a system that has any damage or defect. Some common things to look for include:

- Frayed or worn webbing
- Damaged hardware
- Missing parts
- Ripped stitching

When inspecting your equipment, pay extra attention to your harnesses and lanyards, as many of these have an impact indicator where a special stitching pattern will rip out.

### Our Commitment to You

If you have any questions or concerns about personal fall arrest systems, or fall protection in general, speak with your supervisor.

### ABCs of Personal Fall Arrest Systems – Body Harnesses

Personal fall arrest systems provide a layer of security for employees working at heights. These systems are made up of three separate elements that combine to keep workers safe in the event of a fall. Remember the ABCs of fall protection systems: anchorages, body harnesses and connecting devices.

#### “B” Is for Body Harnesses

A body harness is a key part of any personal fall arrest system in that it is the primary piece of equipment that is physically worn by an employee. The harness is then tethered to an anchorage that is capable of catching and supporting the weight of an employee should they fall.

Harnesses include shoulder straps and leg straps, a sub-pelvic assembly, adjustable buckles or fasteners, and one or more D-rings to connect to other components of the fall arrest system.

It is important to understand that body harnesses are not the same thing as body belts. Body harnesses are safer than belts in the event of a fall. In fact, body belts are not allowed to be used as part of fall arrest systems and are only adequate to be used as positioning devices. Body harnesses are less likely to cause injury while breaking an employee’s fall due to the impact of being caught being dispersed across a larger portion of the body, rather than concentrated around the waist.

Like all personal protective equipment, body harnesses can only be effective if they are used correctly. Make sure that your harness fits snugly. There should be no slack when standing up straight. You should be able to fit an open hand, but not a closed fist, between the strap and your body. Be sure to check that the D-ring is centered between your shoulder blades and that all straps are tucked in.

Body harnesses may be considered one-size-fits-all, but some manufacturers will provide more than one size. A poorly fitting harness can put you in danger and lead to serious injury. When selecting a harness, be certain that it can be adjusted to fit you properly.

#### Inspections of Harnesses and Service Life

A defective fall arrest system can be the difference between life and death. As such, it is important that all of the parts of your equipment, including the harness, be inspected regularly. When inspecting your body harness, be on the lookout for:

- Frayed, worn or cut webbing
- Damaged or misshapen hardware
- Missing parts
- Ripped stitching

In addition to checking for those issues, also pay attention to whether your harness has an impact indicator, which will have a special stitching pattern ripped out if the harness has previously stopped a fall or been subjected to a similar force.

There is not a specific timeline that can be followed 100% of the time regarding the lifespan of a body harness. However, it is important to pay close attention to the overall condition of the harness as well as the manufacture's recommendations for inspections and the lifespan of the harness you are using.

One key part of maximizing the durability and lifespan of a harness is storing it correctly. When not being used, harnesses should be hung up in a clean, dry and cool area. Keep them off the floor and away from other equipment. Chemicals, sunlight and welding slag can all cause damage to harnesses. The webbing of a body harness is particularly susceptible to damage.

### Our Commitment to You

Your safety is our first priority at . If you have any questions or concerns about body harnesses, personal fall arrest systems or fall protection in general, speak to your supervisor.

### Inspecting and Caring for Your Fall Protection System

To maintain the service life and high performance of your fall protection system, the Occupational Safety and Health Administration (OSHA) suggests that you need to inspect and maintain its components regularly. How? By following the effective tips outlined below.

#### Inspecting Your Equipment

##### Webbing (body of belt, harness or lanyard)

- Inspect the entire surface of webbing for damage. Beginning at one end, bend the webbing in an inverted "U." Holding the body side of the belt toward you, grasp the belt with your hands 6 to 8 inches apart.
- Watch for frayed edges, broken fibers, pulled stitches, cuts or chemical damage. Broken webbing strands generally appear as tufts on the webbing surface.
- Replace according to manufacturer guidelines.

##### Buckle

- Inspect for loose, distorted or broken grommets. Do not cut or punch additional holes in the waist strap or strength members.
- If the belt does not have grommets, check for torn or elongated holes that could cause the buckle tongue to slip.
- Inspect the buckle for distortion and sharp edges. The outer and center bars must be straight. Carefully check corners and attachment points of the center bar. They should overlap the buckle frame and move

- freely back and forth in their sockets. The roller should turn freely on the frame.
- Check that rivets are tight and cannot be moved. The body side of the rivet base and outside rivet burr should be flat against the material. Make sure the rivets are not bent.
- Inspect for pitted or cracked rivets that show signs of chemical corrosion.

##### Rope Lanyard

- Rotate the rope lanyard and inspect from end to end for fuzzy, worn, broken or cut fibers. Weakened areas have noticeable changes in the original rope diameter.
- Not counting the initial break-in period, replace when the rope diameter is not uniform throughout.
- The older a rope is and the more use it gets, the more important testing and inspection become.

##### Harness Hardware (snaps or "D" rings)

- Inspect hardware for cracks or other defects. Replace the belt if the "D" ring is not at a 90° angle and does not move vertically independent of the body pad or "D" saddle.
- Inspect tool loops and belt sewing for broken or stretched loops.
- Check bag rings and knife snaps to see that they are secure and working properly. Check tool loop rivets. Check for thread separation or rotting, both inside and outside the body pad belt.
- Inspect snaps for hook and eye distortions,

cracks, corrosion or pitted surfaces. The keeper (latch) should be seated into the snap nose without binding and should not be distorted or obstructed. The keeper spring should exert sufficient force to close the keeper firmly.

### Safety Straps

- Inspect for cut fibers or damaged stitches inch by inch by flexing the strap in an inverted "U." Note cuts, frayed areas or corrosion damage.
- Check friction buckle for slippage and sharp buckle edges.
- Replace when tongue buckle holes are excessively worn or elongated.

### Shock-Absorbing Packs

- Examine the outer portion of the shock-absorbing pack for burn holes and tears.
- Stitching on areas where the pack is sewn to the D-ring, belt or lanyard should be examined for loose strands, rips and deterioration.
- Remember, never use defective equipment. If there is any doubt about the safety of the equipment, do not use it. Replace any equipment involved in a fall, including ropes. Always report any questionable defects to your supervisor.

### Cleaning and Maintaining Equipment

Basic care prolongs the life of your equipment and contributes to its performance.

- Wipe off all surface dirt with a sponge dampened in plain water. Rinse the sponge and squeeze it dry. Dip the sponge in a mild

solution of water and commercial soap or detergent. Work up a thick lather with a vigorous back and forth motion.

- Rinse the webbing in clean water.
- Wipe the belt dry with a clean cloth. Hang freely to dry, away from direct heat, and out of long periods of sunlight.
- Store in a clean, dry area, free of fumes, sunlight or corrosive materials and in such a way that it does not warp or distort the belt.

# Safety Matters

## Construction

### Extension Ladder Safety

When using an extension ladder, it is important to remember that there are several characteristics that make them different from other ladders, and you must keep special safety precautions in mind to protect yourself.

#### How is it Different?

Different from a stepladder that requires level support for all four of its side rails, the extension ladder has only two level ground support points in addition to a top support. Extension ladders are non-self-supporting adjustable ladders consisting of two or more sections that travel in guides or brackets arranged to permit length adjustment. They are designed for use by only one person.

#### Height Restrictions

In some cases, work sites may put restrictions on ladder height. When you use longer ladders, you may find that they cannot be set up at the proper 75 ½ degree angle, even when fully retracted. To prevent the bottom of the ladder from sliding out, choose a shorter extension or single ladder.

An extension ladder must extend at least three feet above the top point of support.

#### Bridging the Gap

At times, using a certain ladder length can create a gap in the height of a wall that can be reached by the user. When working with a 14-foot extension ladder, working from the ladder below 10 feet is a problem, and a stepladder or shorter non-self-supporting ladder is recommended.

#### Using the Ladder

- When selecting an extension ladder, know that the top of it must extend at least 3 feet above the roof eave.
- Ensure that you are not setting up an extension ladder upside down with the fly section at the bottom and the base section at the top, rung locks engaged.
- When the extension ladder has been used as a single ladder, ensure that all guides or brackets are properly assembled and engaged before you use it.
- Never make an extension adjustment when someone is standing on the ladder.
- Be sure the extension rope is tracking correctly on the pulley before making an extension adjustment.
- Never step or stand higher than the step indicated on the label marking the highest standing level.
- Never attempt to mount the ladder from the side or step from one ladder to another unless the ladder is secured against sideways motion.

#### Care and Maintenance

- Inspect the ladder thoroughly before you use it each time.
- Clean climbing and gripping surfaces if they have been in contact with oil, grease or other slippery materials.
- Check bolts, rivets, rail connections and anti-slip feet for wear and tear.
- Inspect ropes, cables and pulleys for wear.
- When transporting ladders on vehicle ladder racks, support them properly with wood- or rubber-covered pipe with as little overhang as possible and secure the ladder to each support point.

# Safety Matters

## Construction

### Avoiding Slips and Falls at the Site

On any given day, the injury rate for construction workers is higher than the national average for all other industries. Following these basic slip and fall prevention tips can help prevent you from becoming a statistic.

#### Do Your Safety Part

There are various ways to suffer slips and falls while working. You can slip and lose your balance, trip over objects left improperly in a walkway or fall from a ladder or scaffolding. To avoid these mishaps, be on the lookout for tripping hazards such as the following:

- Water puddles
- Worksite materials
- Grease or oil
- Sawdust
- Extension cords and cables

Even small quantities are enough to make you fall.

#### Good Housekeeping Counts

When entering a building from the outdoors or from debris areas, clean your footwear thoroughly. Snowy and rainy weather require a doormat at each entrance to allow for complete wiping of shoes.

Beware of tripping hazards—trash, unused materials or any object left in walkways invites falls. Extension cords, tools, carts and other items should be removed or properly barricaded

off. If equipment or supplies are left in walkways, report it. Let the proper personnel remove it. And keep passageways clean of debris by using trash barrels and recycling bins.

#### Practice Prevention

Walk in designated walking areas. Concentrate on where you are going—horseplay or short cuts through the job site invites accidents. If you're carrying a heavy load that hampers your ability to see properly, request spotting assistance from a co-worker.

The worst falls are from elevated positions such as ladders, and can result in serious injury or death. Learn and practice ladder safety and the proper use of scaffolding. For example, when climbing, use a ladder of proper length that is in good condition. Keep it placed on a firm surface. Do not climb a ladder placed on machinery, crates, stock or boxes. Keep the ladder's base one foot away from the wall for every four feet of height. Don't over-reach. Always have control of your balance when working from a ladder. Never climb a ladder with your hands full, and always transport tools in their proper carrying devices.

When using scaffolding, be sure it is properly assembled according to the manufacturer's specifications. Check carefully for defects. Standing and working planks should be level and clean. Use toe boards to prevent tools from falling and workers from slipping. Report any misuse of proper scaffolding safety. Slips and falls occur every day. The extent of injuries and their recurrence can be minimized through proper safety knowledge, good housekeeping and practicing prevention.

# Safety Matters

## Construction

### Ladder Safety at the Construction Site

Falls from elevated surfaces are frequently listed as one of the most common causes of accidents in the construction industry. Most of these accidents occur due to failure to follow basic ladder safety. To help prevent ladder injuries on the jobsite, practice the following safety tips.

#### Setting up Safely

Make sure you select the correct ladder for the job – check the length and duty rating. Proper length is a minimum of three feet extending over the roofline or working surface.

Inspect your ladder before each use for loose or damaged parts, such as the following:

- Steps
- Rungs
- Spreaders
- Rung dogs
- Safety feet
- Other parts

Clear the area where you will be working. Never place a ladder in front of a door that isn't locked, blocked or guarded.

Because metal ladders conduct electricity, use a wooden or fiberglass ladder near power lines or electrical equipment.

Check that all locks on extension ladders are properly engaged before placing your ladder on a steady surface. The ground underneath the

ladder should be level and firm. Large, flat wooden boards braced underneath a ladder can help level it on an uneven surface or soft ground. Straight, single or extension ladders should be set up at approximately a 75 degree angle.

Use the 1:4 ratio to ensure your safety when on a ladder. Place the base of the ladder one foot away from whatever it's leaning against for every four feet of height up to the point of contact for the top of the ladder.

#### Use Caution

Always use caution when using a ladder at your construction site, and never use a ladder for any other purpose than intended.

Other safety considerations include the following:

- Make sure the weight that your ladder is supporting does not exceed its maximum load rating (user plus materials). Only one person should be on a ladder at a time.
- Keep your body centered between the rails of the ladder at all times. Do not lean too far to the side while working. Never overreach—instead, descend from the ladder and move it to a better position.
- Do not step on the top step, bucket shelf or attempt to climb or stand on the rear section of a stepladder.
- Always face the ladder when climbing up or down. Never leave a raised ladder unattended.
- Slowly step down from a ladder if you feel dizzy or tired.
- Non-slip footwear should be worn at all times when on a ladder at a construction site.

Minimize ladder accidents by adhering to these safety and prevention tips.



Provided by:

**E-COMP**  **NOW!**



# Posters

## FALLS FROM ROOFS CAN BE PREVENTED!

✓ Wear a harness and always stay connected

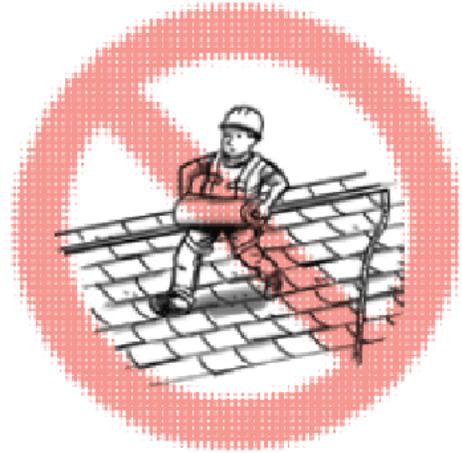
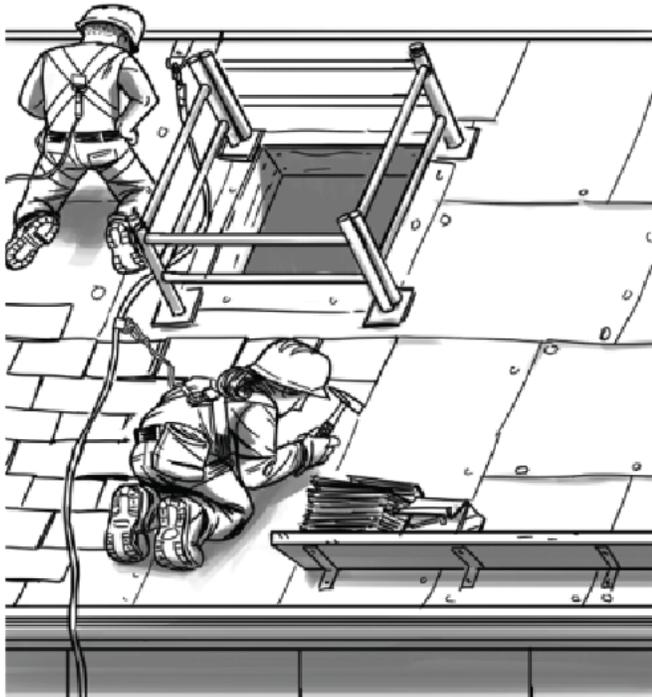
✓ Make sure your harness fits

✓ Use guardrails or lifelines

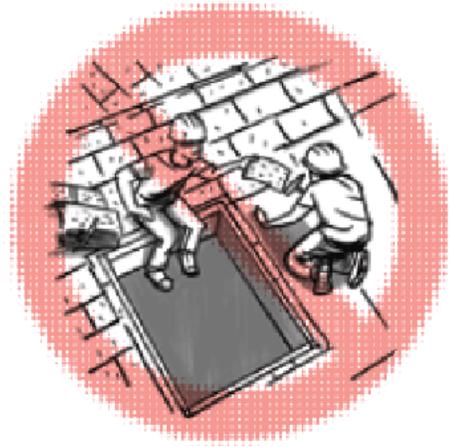
✓ Inspect all fall protection equipment before

use

✓ Guard or cover all holes, openings, and skylights



DON'T  
disconnect from the lifeline



DON'T  
work around unprotected openings or skylights

**PLAN** ahead to get the job done safely.

**PROVIDE** the right roof equipment.

**TRAIN** everyone to use the equipment safely.



**I worked construction for 10 years  
before my fall. It shattered my body  
and my livelihood.**

**Work safely. Use the right equipment.**



Safety Pays. Falls Cost.

**FALLS FROM LADDERS, SCAFFOLDS AND ROOFS CAN BE PREVENTED!**



U.S. Department of Labor

**PLAN** ahead to get the job done safely.  
**PROVIDE** the right equipment.  
**TRAIN** everyone to use the equipment safely.  
[www.osha.gov/stopfalls/](http://www.osha.gov/stopfalls/)

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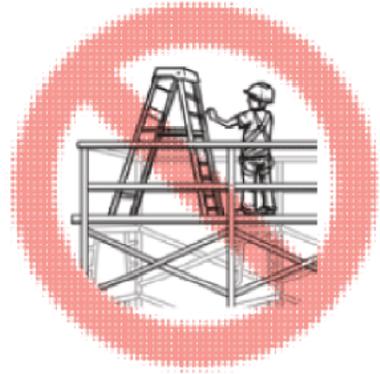
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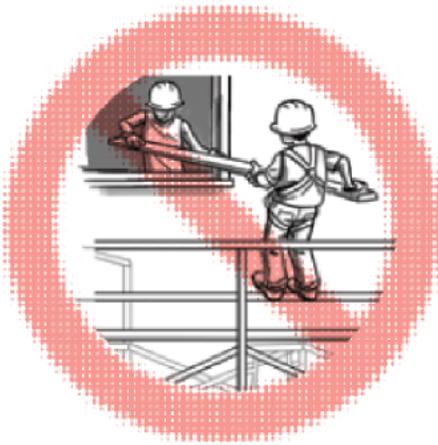
NIOSH 2012-141 / OSHA 3531-04 2012

## FALLS FROM SCAFFOLDS CAN BE PREVENTED!

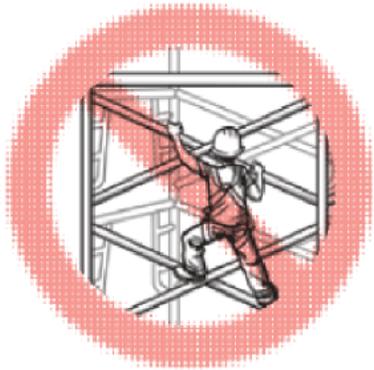
- ✔ Use fully planked scaffolds
- ✔ Ensure proper access to scaffold
- ✔ Plumb and level
- ✔ Complete ALL guardrails
- ✔ Ensure stable footing
- ✔ Inspect before use (by competent person)



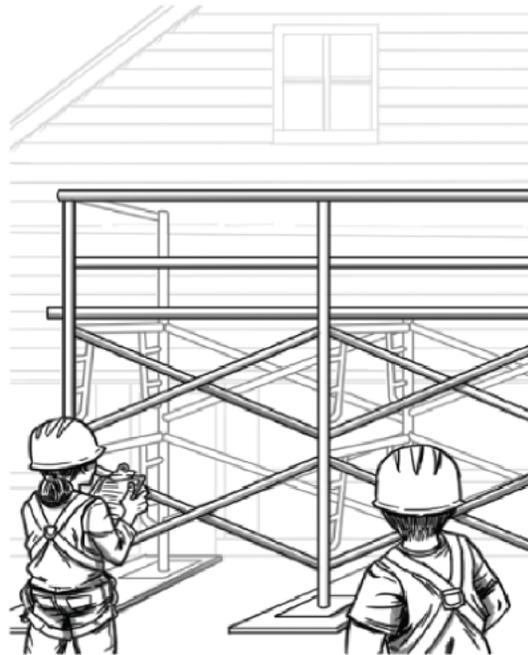
DON'T  
use a ladder on top of a scaffold



DON'T  
stand on guardrails



DON'T  
climb on the cross-braces



**PLAN** ahead to get the job done safely.

**PROVIDE** the right roof equipment.

**TRAIN** everyone to use the equipment safely.

## FALLS FROM LADDERS CAN BE PREVENTED!

- ✓ Choose the right ladder for the job
- ✓ Maintain three points of contact
- ✓ Secure the ladder
- ✓ Always face the ladder
- ✓ Guard or cover all holes, openings, and skylights



DON'T  
stand on top or on the top step of a stepladder



**PLAN** ahead to get the job done safely.

**PROVIDE** the right roof equipment.

**TRAIN** everyone to use the equipment safely.



DON'T  
overreach



DON'T  
place the ladder on uneven footing





**If you're working at  
6 feet or higher, you  
need fall protection.**

**[osha.gov/stopfalls](https://www.osha.gov/stopfalls)**



## 3 parts of an effective fall arrest system:

- ① Anchorage point
- ② Harness
- ③ Lanyard or lifeline

[osha.gov/stopfalls](https://www.osha.gov/stopfalls)

- 
- A worker wearing a green and black safety harness is climbing a tall, white metal tower structure. The worker is positioned on a diagonal beam, leaning forward. The background is a clear, light sky. The tower's structure consists of many interconnected metal beams and ladders.
- ▶ **Use fall protection when 6 feet up and higher.**
  - ▶ **Inspect your harness, lanyard, and anchorage point.**
  - ▶ **Always wear your gear and stay connected.**

[osha.gov/stopfalls](https://www.osha.gov/stopfalls)



Falls can be prevented:

**PLAN** ahead to get the job done safely.

**PROVIDE** the right equipment.

**TRAIN** everyone to use the equipment safely.

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## Protect Your Business With E-COMP NOW!

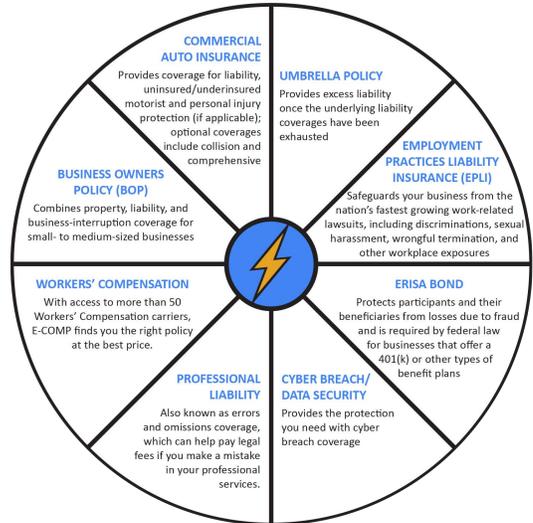
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