

Walking and Working Surfaces: Comprehensive Training

PROGRAM SYNOPSIS:

To ensure workers are provided with safe working and traveling surfaces, OSHA has developed and recently updated its regulation 29 CFR 1910 Subpart D, titled “Walking and Working Surfaces.” Those employees covered by the regulation must be trained in the nature of the fall hazards in the work area and how to recognize them, as well as in the procedures to be followed to minimize those hazards. This program discusses the requirements addressed in the sections of the regulation in detail so viewers can make sure the surfaces on which they work or travel are safe and secure.

Topics include slip and trip hazards, personal fall arrest systems, ladder safety, dock boards, safe use of scaffolds, various fall hazard requirements and exemptions, protection from falling objects and employee training requirements.

PROGRAM OUTLINE:

BACKGROUND

- As workers, one thing we all have in common is the need for a safe and secure walking or working surface on which to stand, work or travel.

- In fact, providing workers with a safe working and traveling surface is so important that the Occupational Safety and Health Administration, OSHA, has developed and recently updated its regulation, 29 CFR 1910 Subpart D, titled “Walking and Working Surfaces.”

- Employee training is an important part of the OSHA regulation. Those employees covered by the regulation must be trained in “the nature of the fall hazards in the work area and how to recognize them”, as well as in “the procedures to be followed to minimize those hazards.”

SLIP & TRIPS HAZARDS

- A slip is caused by a loss of traction between the sole of the footwear and the walking or working surface.

- Some materials that can contribute to a loss of traction include slippery liquids such as water, oil or grease as well as other materials such as saw dust, metal filings or cardboard.

- A trip is caused when the foot or leg strikes or becomes obstructed by an object while in motion.

- Some materials that can contribute to trips include tools, cords, hoses, pipe, pallets or any object located in the path of travel.

- Walking and working surfaces should be maintained free of these types of trip and slip hazards to help prevent falls.

- Another contributing factor to both trips and slips is momentum. The faster a person is moving, the more likely it is that contacting a slip or trip hazard will result in a fall.

- This is why you should always travel at a slow and controlled speed while scanning your path of travel for slip and trip hazards.

- When you notice a slip or trip hazard, you should correct it right away if it is safe for you to do so and you are able; otherwise, mark the hazard in some way and report the condition to someone authorized to have it corrected.

- Section 1910.22 of the regulation addresses these types of slip and trip hazards by requiring that “all walking and working surfaces are kept in a clean, orderly and sanitary condition.” In other words, good housekeeping is mandatory, so don’t allow slip and trip hazards to accumulate.

- Falling down stairs is also a common source of injury. Do not run or skip steps while traveling on stairs.

- Keep one hand on the handrail to steady your balance and travel the stairs in a slow careful manner.

- Do not carry any loads that require two hands to carry and do not carry loads that block your view.
- Keep stairs clear of any objects or items that may become tripping hazards.
- The regulation also requires that the walking and working surfaces of all work areas be inspected regularly, maintained in a safe condition and verified as able to support the intended load.

FALL PROTECTION

- Section 1910.28 explains the employer's duty to provide fall protection. With a few specific exceptions, the regulation requires employees be protected from falling anytime they are exposed to an unprotected edge, four feet or more above a lower level.
- In general, this fall protection may be one or more of the follow types: guardrail systems, safety net systems or personal fall protection systems.
- Examples of personal fall protection systems include positioning systems, travel restraint systems and personal fall arrest systems.

PERSONAL FALL ARREST SYSTEMS

- Section 1910.30 of the regulation requires that workers who use a personal fall arrest system be trained in its proper inspection and use.
- A personal fall arrest system consists of a body harness, anchor point and connector.

Anchor Points

- The anchor point must be able to support 5,000 pounds of "dead weight" per person connected to it.
- The capacity of any anchor point used as part of a fall arrest system must be verified by a qualified person.

Connecting Devices

- The connecting device is used to provide a connection between the body harness and the anchor point.
- There are several types of connecting devices, including single lanyards of various lengths and styles, Y-shaped lanyards designed for moving between anchor points and retractable lanyards, also called fall-limiting devices or retractable lifelines.
- Connecting devices must be rated to support 5,000 pounds. Connecting devices must also feature a double-locking snap hook; a double-locking snap hook requires two separate movements to release the keeper gate of the hook.
- Only connect a snap hook to a compatible device intended for this use.
- Always inspect your connecting device prior to use. Look for any torn stitching, cuts, frayed materials, burns or chemical damage.
- Inspect the hook and keeper gate for any cracks, bending or distortion. Look for any indications that the lanyard has been subjected to the force of a fall.
- Properly dispose of any damaged device and replace it with a new one according to your company's procedures.

Body Harnesses

- The body harness is designed to distribute the shock load of a fall to multiple points on the body, reducing the likelihood of injury.
- Before putting on a harness, you must first perform an inspection. Check for damaged webbing, torn stitching or distorted buckles and D-rings. Inspect the harness for any indication it has been exposed to a fall.

- Damaged harnesses or those exposed to a fall must be removed from service and replaced according to your company's procedures.
- To don the harness, find the back D-ring and gently shake out the harness so that it falls into shape. Once the harness is hanging, you can slip your arms through the shoulder straps using the same techniques as putting on a jacket.
- Next, place the chest strap about mid chest and tighten. Finally, pull the leg straps around your legs and snugly secure the straps.

LIMITING/CALCULATING FALL DISTANCE

- The use of an energy-absorbing lanyard can limit the amount of force experienced by a worker during a fall.
- Another method used to limit the forces generated during a fall is to limit the fall distance. This is commonly done by the use of a fall-limiting device or retracting lifeline.
- Workers who use a personal fall arrest system must be able to calculate their total fall distance so they may determine an appropriate height for the anchor point.
- To calculate the total fall distance, add the worker's height, plus the lanyard's length, plus the elongation length of any energy-absorbing device or the braking distance of a fall limiting device. A three-foot safety factor should also be added into this calculation.
- For example, the total fall distance for a six-foot worker wearing a six-foot, energy-absorbing lanyard with a designated elongation of 3½ feet is 15½ feet.
- After adding an additional three-foot safety factor, we see that the anchor point must be a minimum of 18½ feet high to prevent this worker from hitting the ground during a fall.

LADDER SAFETY

Ladder Inspection

- Section 1910.28 specifically exempts portable ladders from the requirement to provide fall protection; however, section 1910.29 contains detailed requirements for the safe use of ladders.
- Ladders must be inspected for damage or defects prior to its first use on each work shift or more frequently if necessary.
- For this reason, any ladder made of wood must not be painted or coated with any material that may hide structural defects.
- The inspection should include all side rails, rungs, steps, hinges, pins, feet and other structural components of the ladder.
- All ladder surfaces must be free of any puncture or laceration hazards and all tread or standing surfaces must be free of any slippery substances.

Climbing Ladders Safely

- When using any type of ladder, the worker must face the ladder and use at least one hand to grasp the ladder while climbing up or down.
- No object or load may be carried while climbing or descending a ladder that could cause a loss of balance or a fall.
- Using a tool belt, a rope and bucket or having a co-worker hand up tools and supplies are all methods that can be used to avoid climbing while holding tools or objects.
- Portable stepladders or combination ladders used as a stepladder must have a spreader bar or locking device which holds the ladder in the open position while in use.

- All portable ladders have a maximum intended load or duty rating. The weight of the worker plus any tools and equipment must not exceed a ladder's rated capacity.

Ladder Setup

- When setting up, a ladder it must be on a stable level surface.
- If the surface is not level or stable, the ladder must be secured and stabilized before use. Placing the feet on a wide, sturdy board is one method that may be used to stabilize the base.
- Tying the ladder to a sturdy object can further stabilize it from shifting.
- Do not use bricks, rocks, books or other unstable objects as a means to stabilize the base of a ladder.
- Also, do not place a ladder onto other objects, such as barrels, to gain additional height and do not attempt to tie or secure two ladders together to extend their reach unless they are designed for this purpose, such as an extension ladder.

Safe Work Practices

- Do not attempt to move or shift a ladder while someone is on it and do not attempt to hop, slide or move a ladder while you are on it. If you need to move a ladder, climb down and move it in a safe manner.
- If a portable ladder is near a doorway, passageway, driveway or other high traffic area, it should be guarded with a barricade or cones to keep traffic and activity away from the ladder.
- When a ladder is placed behind a doorway it's also a good idea to have a co-worker stand guard to prevent the door or pedestrians from striking the ladder.
- Never stand on the top two steps of a stepladder or the top three rungs of a straight or extension ladder.
- When placing a straight or extension ladder, both side rails must be supported by the wall or structure.
- Also, the base of the ladder should be one foot from the wall for every four feet of height.
- When a straight or extension ladder is used to gain access to another level, the side rails must extend at least three feet above the landing surface.
- The ladder should also be tied off to a secure object to increase its stability.

Fixed Ladders

- Section 1910.28 (b) 9 addresses fixed ladders over 24 feet in length. The regulation ultimately requires that all fixed ladders over 24 feet be equipped with either a personal fall arrest system or a ladder safety system to prevent an employee from falling while climbing or descending the ladder.
- The regulation provides a final deadline of November 18th, 2036 for all fixed ladders over 24 feet to meet this requirement; however, any fixed ladder installed on or after November 19, 2018 must immediately comply with the regulation and be equipped with either a personal fall arrest system or a ladder safety system.

DOCK BOARDS

- Another type of working surface addressed in the OSHA regulation is dock boards.
- A dock board is a portable or fixed device that spans a gap or compensates for a difference in elevation between a loading platform and a transport vehicle. This includes bridge plates, dock plates and dock levelers.
- Dock boards must be verified as capable of supporting the maximum intended load.

- Dock boards must either be anchored in place or be prevented from moving out of a safe position by other equipment or by sufficient contact with the surface.
- In addition, measures such as the use of wheel chocks or dock locks must be used to prevent the transport vehicle or trailer from moving while the dock board is in place.
- When a dock board is used solely by motorized equipment engaged in material handling operations and the dock board is not more than 10 feet above a lower level, then guardrails and handrails are not required. In any other instance, guardrails or handrails must be installed to protect workers on dock boards from falling four feet or more to a lower level.

SCAFFOLDING SAFETY

- The use of scaffolding as an elevated working platform is a common occurrence. Section 1910.27 addresses scaffolding by incorporating the construction scaffolding regulation, 29 CFR 1926 Subpart L.
- First and foremost, all scaffold construction or tear-down must be supervised by a qualified person. A qualified person is someone who, by possession of a recognized degree or certificate or by training and experience, has demonstrated an ability to solve problems related to the safe use of scaffolding.
- All employees who will perform work on a scaffold must receive training, by a qualified person, to recognize and control any hazards related to the scaffold or the work being performed. This training must include electrical hazards, fall hazards, falling object hazards and the use, erection and disassembly of the fall protection systems.
- All workers and conductive objects, including the scaffold itself, must stay at least 10 feet from exposed energized parts.
- Fall hazards related to scaffolding include the risk of falling while climbing the scaffold, falling from unguarded edges or through uncovered areas, as well as falling from material loading areas. To minimize the risk of falling while climbing, always use the ladder that is integral to the scaffold.
- If a ladder is not part of your scaffold, then use an extension ladder that is tied off securely to access your scaffold work area.
- Do not climb the cross braces of a scaffold. This is strictly prohibited and dangerous.
- To prevent workers from falling through uncovered areas, all scaffold work areas where a worker is standing, walking or performing any work must be fully decked or fully planked.
- All elevated work areas of a scaffold must have fall protection. In most cases, this means guardrails and mid-rails.
- Even those areas used for material loading or unloading must have guardrails and mid-rails in place; otherwise, some other form of fall protection must be used, such as a personal fall arrest system.
- When working on a scaffold, you can't stand on other objects or even a stepladder to gain additional height. You must keep your feet flat on the decking.
- Also, be aware that you cannot stand on a rolling scaffold unless the wheels are locked.
- When there is a risk of falling objects, workers below must be protected by the installation of toe boards or debris nets or the area below the scaffold must be barricaded and workers prevented from entering the hazard area.
- All scaffolding needs to be level and stable with the feet placed on an adequate firm foundation.
- When the foundation is unstable or uneven, the poles should be placed on baseplates or mudsills and the scaffold made level by adjusting the feet.
- All scaffold sections must be pinned with cross-braces in place before working on the scaffold.

VARIOUS FALL HAZARD REQUIREMENTS & EXEMPTIONS

- There are a few specific fall hazard situations that have additional requirements or exemptions.

Hoist Areas

- A hoist area is any elevated access to a walking and working surface through which equipment or materials are loaded or received.
- When any portion of a guardrail, gate, or chain is removed and a worker must lean over the edge to facilitate hoisting, the worker must be protected by a personal fall arrest system.

Holes

- Holes are defined as a gap or open space in a floor, roof or other horizontal walking or working surface.
- Employees must be protected from falling through any hole or sky light by covers, guardrails, travel restraint systems or personal fall arrest systems. One exception to this requirement is a stairway hole. A stairway hole must be guarded on its three exposed sides by a guardrail system.

Runways and Similar Walkways

- A runway is an elevated walking and working surface such as a catwalk or elevated walkway.
- Employees on runways or similar walkways must be protected from falling by a guardrail system. If it can be demonstrated that it is infeasible to have guardrails on both sides of a runway that is exclusively used for a special purpose, then it is permitted to omit the guardrail on one side, provided that the runway is at least 18 inches wide and the employee is protected by a personal fall arrest system or travel restraint system.

Dangerous Equipment

- Dangerous equipment means equipment such as vats, tanks, electrical equipment or machinery with protruding parts that may harm an employee who falls into or onto the equipment.
- When employees are less than four feet above these types of dangerous equipment, they must be protected from falling into or onto the equipment by guardrails or a travel restraint system.
- When employees are four feet or more above these types of dangerous equipment, safety nets or a personal fall arrest system may also be used.

Openings

- An opening is a gap or open space in a wall, partition or similar surface that is at least 30 inches high and 18 inches wide, through which an employee could fall four feet or more to a lower level.
- If the inside bottom edge of an opening is less than 39 inches above the walking and working surface, then the employee must be protected from falling into the opening by the use of guardrails, safety nets, travel restraints or a personal fall arrest system.

Repair Pits and Service Pits

- The use of a fall protection system is not required for a repair, service or assembly pit as long as all of the following conditions are met:
 - The pit is less than 10 feet deep;
 - Access to within six feet of the pit edge is limited to authorized employees who have been trained by a qualified person to recognize and avoid the fall hazards in the work area;
 - Floor markings and/or warning lines are installed at least six feet from the edge of the pit;
 - Caution signs are posted that state “Caution Open Pit.”

Work on Low Sloped Roofs

- A low-sloped roof is one with a vertical to horizontal slope ratio less than or equal to four in 12.

- When work is performed less than six feet from the roof edge, workers must be protected by a guardrail system, safety net system, travel restraint system or personal fall arrest system.
- When infrequent and temporary work is performed at least six feet from the edge, but less than 15 feet from the edge, a designated area may be used instead of other forms of fall protection.
- A designated area is a distinct portion of a walking or working surface delineated by a warning line, in which employees may perform work without additional fall protection.
- The warning line marking a designated area must have a minimum breaking strength of 200 pounds, be between 34 and 39 inches above the working surface and be clearly visible from a distance of 25 feet.
- A designated area may also be used in lieu of other fall protection when regular and frequent work is performed 15 feet or more from the roof edge.
- Finally, when infrequent and temporary work is performed at least 15 feet or more from the roof edge, no fall protection is required provided that employees are trained not to go within 15 feet of the roof edge without fall protection.

PROTECTION FROM FALLING OBJECTS

- Section 1910.28 (c) of the walking and working surfaces regulation also requires that workers be protected from falling objects.
- When an employee is exposed to falling objects, head protection and at least one of the following protective measures must be implemented:
 - The erection of toe boards, screens or guardrail systems to prevent objects from falling;
 - The erection of canopy structures; while also keeping objects a safe distance from the edge;
 - Barricading and prohibiting access to areas where objects might fall, while also keeping objects a safe distance from the edge.

EMPLOYEE TRAINING REQUIREMENTS

- Employees must be trained in the proper care, inspection, storage and use of any equipment covered by the regulation before use.
- When changes in the workplace or changes in equipment render the training obsolete, then the affected employees must be retrained.
- Retraining must also occur when it becomes evident that an employee does not have the requisite understanding or skill to use the equipment or perform the job safely.
- All training and information must be provided to the employee in a manner that the employee understands.
- Finally, it's important to understand that the regulation contains exact specifications and requirements for the construction and installation of ladders, stairs, guardrails, toe boards, covers, cages, safety nets, landings and similar items.
- If you are responsible for constructing, installing, maintaining or inspecting these types of structures, make sure they are in compliance.

PREPARE FOR THE SAFETY MEETING

Review each section of this Leader's Guide as well as the program. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the program. Play it without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Make an attendance record and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

Here are some suggestions for preparing your video equipment and the room or area you use:

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the program.

CONDUCTING THE PRESENTATION

Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to discuss the requirements addressed in the sections of OSHA's "Walking and Working Surfaces" Standard in detail so viewers can make sure the surfaces on which they work or travel are safe and secure.

Introduce the program. Play it without interruption. Review the program content by presenting the information in the program outline.

Lead discussions about specific fall hazards present at your facility and the safety precautions workers must follow to control or avoid these hazards.

After watching the program, the viewer should be able to explain the following:

- What precautions to take to avoid slips and trips;
- How to properly inspect and use a personal fall arrest system;
- How to inspect, setup, climb and work on portable ladders properly;
- How to safely use dock boards and scaffolding;
- What is required or exempted when encountering various fall hazards such as hoist areas, holes, dangerous equipment, pits and low sloped roofs;
- When training on equipment covered by the OSHA regulation is required.

**Walking and Working Surfaces:
Comprehensive Training
REVIEW QUIZ**

Name _____ **Date** _____

The following questions are provided to check how well you understand the information presented during this program.

1. When you notice a slip or trip hazard, you should correct it right away if it is safe for you to do so and you are able.
 - a. True
 - b. False

2. An anchor point used in a personal fall arrest system must be able to support _____ of dead weight per person connected to it.
 - a. 500 pounds
 - b. 1,000 pounds
 - c. 5,000 pounds

3. Which of the following are factors in the calculation of a worker's total fall distance?
 - a. The worker's height
 - b. The lanyard's length
 - c. The elongation length or braking distance of the connecting device
 - d. A three-foot safety factor
 - e. All of the above

4. Ladders made of wood must not be painted or coated with any material that may hide structural defects.
 - a. True
 - b. False

5. Bricks or flat rocks should be used to stabilize the base of a ladder if a sturdy board is not available.
 - a. True
 - b. False

6. You should never stand on the top two steps of a stepladder or the top three rungs of a straight or extension ladder.
 - a. True
 - b. False

7. When setting up a ladder, the base of the ladder should be placed one foot from the wall or structure for every _____ of height.
 - a. 4 feet
 - b. 6 feet
 - c. 8 feet

8. Standing on a rolling scaffold is not permitted unless the wheels are locked.
 - a. True
 - b. False

9. A low-sloped roof is one with a vertical to horizontal slope ratio less than or equal to 3 in 12.
 - a. True
 - b. False

10. Employees are only required to be retrained in the walking and working surfaces regulation when changes in the workplace or equipment render their previous training obsolete.
 - a. True
 - b. False

**Walking and Working Surfaces:
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ANSWERS TO THE REVIEW QUESTIONS

1. a
2. c
3. e
4. a
5. b
6. a
7. a
8. a
9. b
10. b