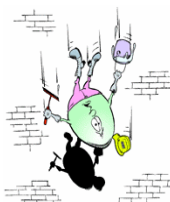


Fall Protection



Fall Speed vs. Reaction Time



In 1 second your body will fall 16 feet (4.8 mts.)

Good body reaction time = 0.5 seconds

Travel distance in 0.5 seconds = 4 feet (1.21mts.)



By the time you react your body will be 6½ feet (2 mts) below where you were



When do you need Fall Protection

OSHA's Regulation 29 CFR 1926.501 (b) under Subpart M requires fall protection wherever the potential to fall six feet or more exists.

Fall protection is required when you are:

- within six feet of an unprotected roof edge;
- working in a unguarded mezzanine and balcony edges;



alliance
An OSHA Cooperative Program



When do you need Fall Protection (CONT'D)

Fall protection is also required in the following locations:

- working off aerial lift;
- unguarded scaffolding 10 feet or higher



alliance
An OSHA Cooperative Program

Types of Fall Protection Systems

- Passive System is a physical barrier that restricts a worker from entering a fall hazard.
- Active System will stop employees fall and limit the fall to specified distance and will limits the amount of force a person is subjected to in the event of a fall.

Examples of Fall Protection Systems

Passive fall protection systems include:

- Perimeter guardrails
- Safety Net
- Safety Monitors

Active Fall Protection Systems include:

- Life lines
- Work positioning device
- Personal Fall Arrest Equipment

Common Fall Protection Systems in Our Industry

- Perimeter Guarding
 - A physical barrier that restricts a worker from entering a fall hazard area.
- Personal Fall-Arrest Systems
 - A system that will stop a workers fall and limit the fall to a specified distance.
 - Limits the amount of force a person is subjected to in the event of a fall.



Perimeter Guarding

- Perimeter guarding shall consist of a mid-rail, top-rail, toe-board system. The top edge height of the rail shall be 42+/-3 inches and the mid-rail should be between the top and the walking/working level.



- On scaffolds – a guardrail will consist of a toe board, mid rail and top rail.



Personal Fall-Arrest Systems

- A Personal Fall-Arrest System is a system used to arrest an employee in a fall from a working level.
- Any person ordered to work with at height who has an increase risk of falling off of structures/buildings should wear a personal fall arrest system.



alliance
An OSHA Cooperative Program

Personal Fall-Arrest Systems

(cont'd)

- Personal Fall-Arrest Systems, when stopping a fall shall be rigged such that a worker can neither free fall more than six feet, nor contact any lower level.
- Must have a minimum breaking strength of 5,000 pounds.



alliance
An OSHA Cooperative Program

Personal Fall-Arrest Systems



- A personal fall-arrest system shall consist of the following:
Anchorage points, Full body harness, Shock Absorbing Lanyard, Lifeline, Rope-grabs, Connectors
- All components of the fall arrest system shall be fully compatible.



Anchorage Points

- An **anchorage** is a secure point of attachment for lifelines, lanyards or deceleration devices;
- Must be independent of any anchorage being used for equipment tiebacks;
- Must be independent of the means of supporting or suspending the worker;
- Must be capable of supporting at least 5,000 pounds per worker;
- Sound anchorages include certified roof anchors as well as structural members.



IMPROPER Anchorage Points

- Standard Guardrails or Railings
- Ladders/Rungs
- Scaffolding
- Light Fixtures
- Conduit or Plumbing
- Ductwork or Pipe Vents
- Antennas or Satellite Dishes
- Anything else that you're not sure of!



Full Body Harness

- Must be the right size for you.
- The attachment point of a body harness shall be located on the:
 - Rear D-ring between shoulders when working from a suspended scaffold or an aerial lift
 - Front D-ring when working from a bosun's chair.
- Harness must be adjusted snugly starting with leg straps, then waist, shoulders and chest.



Lanyards

- Used to connect a body harness to a lifeline, rope-grab, or anchorage point.
- Shall be the appropriate length:
 - Bosun's chair – 2 feet or less
 - Suspended scaffold – 3 to 4 feet
 - Aerial lift – 4 to 6 feet
- Attach to:
 - Rear D-ring on harness between shoulders when working on suspended scaffolds and aerial lifts.
 - Front D-ring when working from a bosun's chair.
- Be protected against being cut or abraded.



Lifelines

- Vertical - connected to an anchorage at one end to hang vertically.
- Horizontal - connected to anchorages at both ends to stretch horizontally.



Lifelines (cont'd)

- are used as a means of connecting other components of a Personal Fall-Arrest System.
- shall be protected from contact with any surface that may abrade, weaken, damage or sever it.
- shall be removed from service as recommended by the manufacturer.



alliance
An OSHA Cooperative Program

Rope-Grabs

- A Rope-Grab is a deceleration device which travels on a lifeline and automatically engages the lifeline and locks to arrest the fall of an employee.
- When securing the rope grab at the work location, it should be raised above eye level, securely engaging the lifeline.



alliance
An OSHA Cooperative Program

Connectors

- A Connector is a device which is used to couple (connect) parts of the system together. It may be an independent component of the system (such as a carabiner), or an integral component of part of the system (such as a buckle or D-ring sewn into a body harness, or a snap-hook spliced or sewn to a lanyard).
- The following are considered acceptable connectors:
 - Self-locking snap hooks
 - Autolocking & screwgate carabiners
 - Quick-links connectors, etc.
- Snaphooks shall be a double locking-type.
- Screwgate carabiners and quick-link connectors must be fully threaded.



Inspection of Fall Protection Systems

The following criteria will be utilized to maintain all equipment in good working condition:



Full Body Harnesses

Inspect before each use.

- Assure that all hardware (ie. D-rings, buckles, etc.) work properly and that they do not have any sharp edges, burrs, cracks or corrosion.
- Inspect webbing for wear, cuts, burns, frayed edges or other damage.
- Inspect all stitching for abrasion and wear to assure integrity.



Lanyards

Inspect before each use.

- Check lanyard material for cuts, burns, abrasions, kinks, knots, broken stitches and excessive wear.
- Visually inspect shock absorber for any signs of damage.
- Verify that points where the lanyard attaches to the connectors are free of defects.



Lifelines

Inspect before each use, checking for the following:

- Glazing of the sheath caused by the fibers being melted.
- Severe furring of the rope.
- Soft spots, caused by changes to the internal structure of the core.
- Cutting of sheath fibers due to contact with sharp edges.
- Any sign of the core showing through (rope cores are always white).



alliance
An OSHA Cooperative Program



Connectors

Inspect before each use.

- **Inspect the snap hooks for distortions in the hook, locks, and eye.**
- **Verify that the keeper spring securely closes the keeper latch.**
- **Test the locking mechanism to verify that the keeper latch locks properly.**
- **Check carabiner for excessive wear, distortion, and lock operation.**
- **Ensure that all locking mechanisms seat and lock properly.**
- **Verify there are no cracks or pitted surfaces.**



alliance
An OSHA Cooperative Program

Care for Fall Arrest Systems

- Clean equipment after use.
- Air dry equipment, do not hang in direct sunlight.
- Store equipment in a cool, dark, dry well ventilated place.
- Do not alter equipment in any way.
- Use caution when using equipment around moving machinery, electrical hazards, sharp edges, chemical hazards and high heat environment or flame.
- All components of a Personal Fall Arrest System that are involved in a fall shall be immediately removed from service and disposed of or destroyed.



alliance
An OSHA Cooperative Program

Remember!

- Always use approved anchor points.
- Always make sure fall protection is sufficient for the job.
- Always inspect your fall protection system prior to each use.
- Do not use fall protection system to carry materials or tools.
- Always tie off when coming within 6 feet of an unprotected edge.



alliance
An OSHA Cooperative Program