

Employees on walking/working surface must be protected from falls when:

- Working at a height of six feet or more or: near wall, floor, hole or skylight openings and near excavations that exposes employees to a fall hazard of six feet or more.
- Working on sloped roofs.
- Working above dangerous equipment or facilities, regardless of height.
- Working within six feet of the edge of flat roofs or leading edges on construction.
- Working on moving scaffolds, lifts or buckets.

A fall protection system is required if a worker could fall from an elevated position. Fall protection systems include; **guardrails, warning lines, safety nets or personal fall arrest systems**. As a general rule, a fall protection system must be used anytime a working height of six feet or more is reached. Working height is the distance from the walking/working surface to a grade or lower level.

Guardrail System:

A barrier erected to prevent employees from falling to lower levels. It consists of stanchions, mid rail and top rail. Guardrail systems must be capable of withstanding a force, without failure, of 200 pounds applied in any direction.

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, fall arrest, or safety net system to protect employees in the area. In lieu of a warning line system a **safety-monitoring system** in which a competent person is responsible for recognizing and warning employees of fall hazards may be used.

Safety Nets:

Where the use of scaffolds, platforms, guardrails, warning lines, or fall arrest systems is impractical, safety nets shall be provided when workplaces are more than 20 feet above the ground.

Fall Arrest System:

Fall arrest systems shall be designed in accordance with OSHA and ANSI standards. The components of this system include: full-body harnesses with a shock-absorbing lanyard or a retractable lifeline, anchor point and connector. A full-body harness distributes the forces throughout the body, and the shock-absorbing lanyard decreases the total fall arresting forces.

Anchorage:

A secure point of attachment for lifelines, lanyards or deceleration devices. Anchorage points must be attached only to main structural framing members (columns, beams, trusses etc.) No attachments are to be made to non-structural members (pipes, conduits,

University of Pittsburgh

Fall Protection Guidelines

July, 2003

mechanical equipment, electrical equipment, handrails, etc.). Attachments to secondary structural members (roof and wall purlins, cross bracing, architectural walls, sheeting and concrete members) must not be made until verification of the appropriate load carrying capacity.

Attachment of harness to anchorage point:

Anchorage used for attachment of personal fall arrest equipment shall be rigged such that an employee can neither free fall more than six feet nor contact any lower level. The anchorage point must be capable of supporting 5400 pounds per person attached. A lanyard is 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. Lanyards may not be tied off to an anchorage point on itself (i.e. looped over a beam) unless specifically approved for that application. A **cross arm strap** should be utilized when tying off to a beam. A lanyard must never be knotted in an attempt to shorten it. Anchorage points generally must be above the employee's head to prevent free fall from exceeding six feet.

Inspection and Maintenance:

- The employee shall inspect the fall protection equipment before each use. Inspect for shock loading, rips, tears or abrasion, damaged eyelets, rivets, buckles, D-rings and connectors. Any damaged equipment must be reported to the foreman/supervisor and must be destroyed.
- Equipment that has been used to arrest a fall shall be immediately removed from service and destroyed.
- Nylon lanyards and harnesses should not be exposed to extreme heat or chemicals. These may damage and weaken the fibers.

Training:

Training is required for employees who might be exposed to fall hazards.

- Employee training must include:
- The nature of fall hazards in the work area.
- The correct procedures for erecting, maintaining, disassembling, operating and inspecting fall protection systems.
- An overview of OSHA's Fall Protection Standard.

Responsibility:

- The employee is responsible for; inspection and proper use of equipment, and reporting any falls to foreman/supervisor and EH&S.
- The foreman/supervisor is responsible for; insuring that any employee potentially exposed to a fall hazard as defined in these guidelines is properly trained and protected.
- The Department of Environmental Health and Safety (EH&S) is responsible for; training, recommending appropriate fall protection systems when consulted, auditing for compliance with these guidelines, and annual inspection of fall protection equipment.

Roof Work;

Roof construction, repair, and other maintenance operations often require manual labor at dangerous heights and on steeply pitched working surfaces. Roofing work includes 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. The possibility of lost footing, decreased stability, and objects falling from such heights is great; appropriate employee safeguards shall be present. When employees of the University of Pittsburgh are involved in such operations, the following minimum safety guidelines shall be followed.

Prior to walking or placing objects onto roofs, the structural integrity of the roof must be assured.

Each employee engaged in roofing activities on low-slope roofs (slope less than or equal to 4 in 12), with unprotected sides and edges 6 feet or more above lower level shall be protected from falling by:

- Guardrail systems,
- Safety net systems,
- Personal fall arrest systems,
- Combination of warning line system and guardrail 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.

Each employee on a steep roof (slope greater than 4 in 12) with unprotected sides and edges 6 feet or more above lower levels shall be protected from falling by guardrail systems with toeboards, safety net systems, or personal fall arrest systems.

Annual Inspection of Safety Harness and Life Lines

Safety Harness	Information		
Harness Serial #			
Date of Purchase			
Mfg. Of Harness			
Inspection Date			
Harness	OK	Repair/Replaced	Date
All Rivets Secure			
Buckle Secure			
"D" Ring Secure			
All Grommets Secure			
Webbing Condition			
Removed From Service & Destroyed			
Life Line (Lanyard)			
Rope Condition			
Clean Inside Fibers			
Condition of Splice			
Condition of Thimble			
Safety Snap Hardware			
Removed from Service and Destroyed			