

University of Pittsburgh Safety Manual	EH&S Guideline Number: 01-021	
Subject: ROOF SAFETY	Effective Date: 07/29/2016 Review Date: 6/17/2026	Page 1 of 2

The use of roofs on University buildings is prohibited for social and personal purposes. This guideline does not prohibit the use of roof areas for research, teaching, or maintenance purposes provided that adequate safeguards are taken. People wishing to arrange for the use of roof areas for teaching and research purposes must contact Facilities Management or Housing and obtain approval of Environmental Health and Safety (EH&S).

University employees and contractor employees are often required to access building roofs for tasks such as routine maintenance, equipment inspection, and minor roof repair. Work may require employees or contractors to be on roofs for extended periods of time, such as when re-roofing or installing ventilation systems. All contractors are required to comply with these requirements as well as OSHA Subpart M.

1. Fall Prevention/Protection

University and contractor employees that maintain mechanical and electrical equipment mounted on roofs are exposed to fall hazards. Any internal employee working at heights of four feet or more (six feet for construction) above another surface needs to be protected by guardrails, safety nets, or personal fall protection systems. These regulations also apply to skylights, hole covers, and other roof openings. The use of safety nets is not a viable option.

- 1.1. The following provisions do not apply when employees are inspecting, investigation, or assessing work-place conditions prior to the actual start of work and the roof is flat, safe to walk on in all weather conditions, and the area being accessed is not within 15 feet of the outer edge of the roof.
- 1.2. If a roof has parapet walls or railings at least 42" (+/-3"), have an outward and downward force of 200 lbs., and are built according to engineered drawings or manufacturer's instructions, no other safeguards are required.
- 1.3. Steep pitched roofs (>4 in 12 slope) with no inherent fall protection shall only be accessed using Personal Fall Arrest/Restraint Systems. Under no circumstance should anyone be on such roofs in inclement weather such as rain, snow, ice or high winds (> 25 mph).
- 1.4. Work on low sloped roofs (4< 12 slope) require either guardrails, fall protection systems, or a controlled access zone installed 15' from the roofs edge.
- 1.5. Areas which require a worker to climb over walls or pipelines should have a walkway with handrail installed over the impediments.
- 1.6. When ladders are necessary to climb from one level to another, the ladder must be fixed/secured and extend 3' above the point being accessed.
- 1.8. When working within 15' of an unprotected edge, a harness, lifeline and anchorage point or installation of temporary railing (which requires fall protection to install) must be provided.

- 1.9. Controlled access zones consisting of a rope, wire, or chain, and supporting stanchions shall be erected around all sides of the work area. The warning lines shall be erected not less than 15 feet from the roof edge, be readily visible, and be capable of withstanding a 16-pound force applied horizontally against the stanchion. This system is used for flat roofs and low-pitched roofs only.

2. Fall Protection Options

All work shall be considered using the Hierarchy of Controls in the following order:

- a) **Elimination:** The work can be completed by means of eliminating the fall hazard. Examples include pre-assembly on the ground, moving equipment indoors, installing enclosures/guarding around equipment that needs maintenance.
- b) **Passive systems:** Permanent guardrail systems or parapet walls, installed on the roof during construction that are 42" high and withstand the 200-pound downward and outward force. Temporary railing systems, which do not penetrate the roof surface, are commercially available and shall meet the same requirements as permanent guardrail. Manufacturers instructions or engineered drawings shall be referenced for correct installation.
- c) **Fall Arrest Systems:** A personal fall protection system which includes a properly inspected and fitted full body harness, lanyard or retractable lifeline, and anchorage point. All components of this system must be designed to withstand 5,000 pounds of force. The lanyard/retractable lifeline must be selected to minimize free fall to less than 6 feet or withstand less than 1800 lbs. of force on an employee during a fall arrest. Check the user manual read the label prior to selecting equipment.
 - i **Rescue:** If using a Personal Fall Arrest System and can reach the edge, rescue must be considered in the event of a fall. The fire department cannot be the first option for a rescue operation.
- d) **Controlled Access Zones:** A visual warning line consisting of an enclosed work area minimum 15' away from the roofs edge. This provides no protection to employees.

3. Training

- a) All employees shall be trained on Fall Protection prior to using a Personal Fall Arrest System.
- b) Employees are expected to inspect their anchor points, lanyard/retractable lifeline, and harness prior to use.
 - a. Check for cuts, frays, burn holes, rips, corrosion, missing/damaged hardware, and loose stitching. If there are any signs of damage to the equipment, remove from service and make EH&S aware.
- c) EH&S is responsible for annual assessments of Personal Fall Arrest Equipment including pre-engineered anchor systems.
- d) 3rd party vendors are responsible for annual assessments of all engineered anchor points and horizontal lifelines.