

University of Pittsburgh Safety Manual	EH&S Guideline Number: 01-021	
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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. Persons wishing to arrange for the use of roof areas for teaching and research purposes must contact Facilities Management or Housing and also 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. Less frequently, work may require employees or contractors to be on roofs for extended periods of time, such as when re-roofing or installing ventilation systems.

1. Fall Prevention

University and contractor employees that maintain mechanical and electrical equipment mounted on roofs are exposed to fall hazards. According to the Occupational Safety and Health Administration (OSHA); anyone working at heights of six feet or more above another surface needs to be protected by guardrails, safety nets, or personal fall protection systems. These regulations also apply to skylights 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 making an inspection, investigation, or assessment of 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 6' of the roofs outer edge.
- 1.2.** If a roof has parapet walls or railings at least 36" high, no other safeguards are required.
- 1.3.** Steep pitched roofs (>4 in 12 slope) with no inherent fall protection shall only be accessed after receiving permission from the department manager, who will define specific precautions for the particular task. Under no circumstance should anyone be on such roofs in inclement weather such as rain, snow, ice or high winds.
- 1.4.** Work on low sloped roofs with no inherent fall protection will require two individuals unless a personal fall protection system is available.
- 1.5.** When working alone on a flat roof with no parapet or railing, the work area must be at least 25' from the roof edge (daylight) or 50' (night with limited illumination). Distances less than those will require either a personal fall protection system or monitor system.
- 1.6.** Areas which require a worker to climb over walls or pipelines should have a walkway with handrail installed over the impediments.
- 1.7.** Where ladders are necessary to climb from one level to another, the ladder must be fixed/secured and extend 3' above the point being accessed.

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1.8. When working within 10' 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. Warning lines 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 six from the roof edge, be readily visible, and be capable of withstanding a 16 pound force applied horizontally against the stanchion. This is typically for flat roofs and low pitched roofs only.

2. Fall Protection Options

- a) A personal fall protection system which includes a properly inspected and fitted full body harness, lanyard, and anchorage point. This system must be designed to withstand 5,000 pounds of force including anchorage point. The lanyard must be selected to minimize free fall to 6 feet, preferably less. Retractable lanyards are strongly recommended. In some cases, horizontal lifelines may need to be installed.
- b) Temporary railing systems, which do not penetrate the roof surface, are commercially available. These railing systems must be capable of withstanding a 200 pound force exerted in any direction.
- c) Safety-monitoring system is a safety system in which a person monitors the safety of all employees on a roof, and warns them when it appears that they are unaware of the hazard or are acting in an unsafe manner. The monitoring person shall have no other duties and must be on the same roof within visual sighting distance of all employees. The monitoring person must be close enough to verbally communicate with the employees.

More detailed information on the personal fall protection system can be found at:
<http://www.ehs.pitt.edu/assets/docs/GeneralShopandMaintenanceSafetyManual.pdf>