

USING ALTERNATIVE FALL PROTECTION ON ROOFS



Fall protection is required on any walking or working surface, including roofs, when there is a fall hazard of four feet or more. On a low slope roof (4:12 or less) when traditional fall protection systems, such as a 42-inch parapet wall at roof edge, guardrails, personal fall restraint and arrest systems, cannot be used for protection from fall hazards, alternative systems may be used under specific circumstances.

Alternative systems include a warning line, a safety monitor and a safety watch. See Washington Administrative Code 296-155-24615(4), (5), (6) and 296-32-22555 for more information. Work on steep roofs (greater than 4:12) always require guardrails or personal fall protection systems.

WARNING LINE

Warning line systems consist of ropes, wires or chains and supporting stanchions that form a barrier to warn workers they are near an unprotected roof side or leading edge. Warning lines must be erected around all unprotected sides and edges of the work area.

Leading edge work:

Warning lines are erected to separate employees engaged in leading edge work (between forward edge of warning line and the leading edge), from other work areas on the low pitched surface.

- Erect warning line not less than 6 feet or more than 25 feet from leading edge.
- When fall arrest or restraint systems are not used, implement a safety monitor system to protect employees constructing the leading edge.

Note: Employees working between the roof edge and 6 feet from the edge must be protected with guardrails or a personal fall restraint or arrest system.

See red section of diagram below.

Roofing work:

- Erect warning line no less than 6 feet from edge if no mechanical equipment used.
- If mechanical equipment is being used, erect warning line not less than 6 feet from roof edge, which is parallel to the direction of mechanical equipment operation, and not less than 10 feet from roof edge which is perpendicular to the direction of mechanical equipment operation.

Note: Warning lines are not required when performing roofing work on low slope roofs less than 50 feet wide.

See yellow section of diagram below.

Work other than leading edge or roofing:

Erect warning lines not less than 15 feet from unprotected sides or edges of the roof or open sided surface.

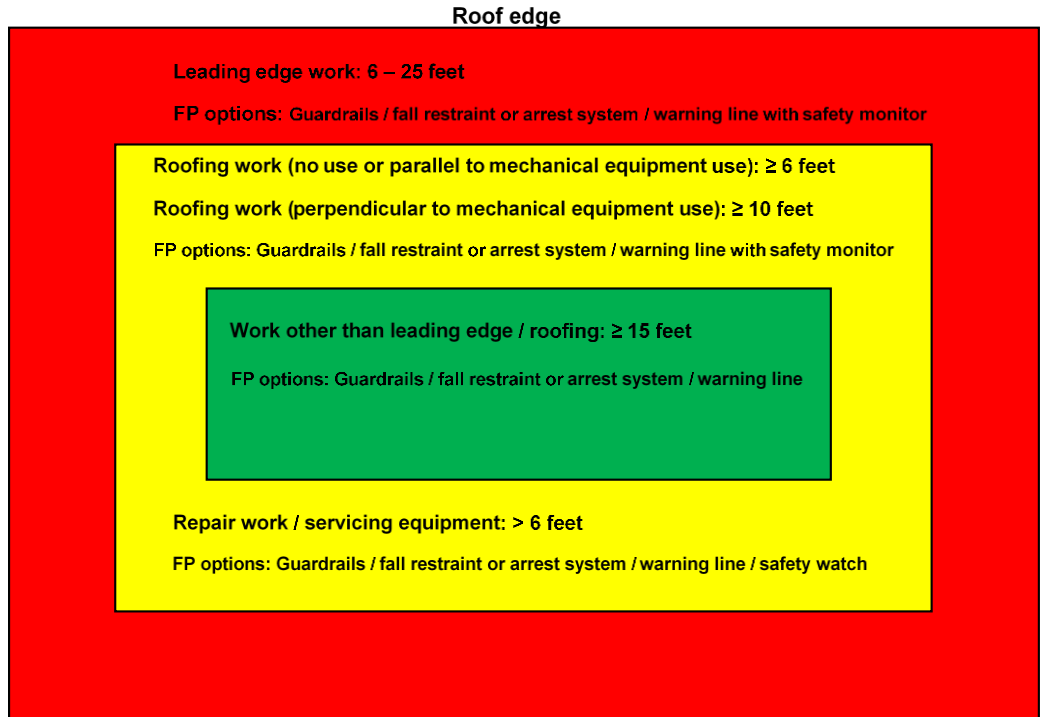
See green section of diagram below.

Warning lines are erected as follows:

- Use only on low slope roof as part of approved fall protection work plan.
- Erect warning lines around all sides of work area.
- Use a line with a minimum breaking strength of 200 pounds.
- Flag line at 6 feet intervals with highly visible material.
- Rig and support line so its lowest point, including sag, is not less than 36 inches and not more than 45 inches from the roof or surface.
- After erected, with the line attached, stanchions will be capable of resisting a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the roof surface, perpendicular to the warning line, and in the direction of the roof edge.
- Attach the line at each stanchion so that pulling on one section of the line between stanchions will not cause the line in adjacent sections to go below 36 inches.
- Do not store materials within 6 feet of roof edge unless guardrails are erected at roof edge.
- Use a personal fall restraint or arrest system if working outside of warning line.
- Connect points of access, materials handling areas, and storage areas to the work area by a clear access path formed by two warning lines. When not in use, place similar line across the path.

SEE THE DIAGRAM TO THE RIGHT TO ANSWER THESE QUESTIONS:

1. Where do I put the warning line?
2. What are the fall protection (FP) options for:
 - > Leading edge work?
 - > Roofing work?
 - > Work other than leading edge or roofing?
 - > Repair work or servicing equipment?



≥ = equal to or greater than
 > = greater than

Note: Employees working between the roof edge and 6 feet from the edge must be protected with guardrails or a personal fall restraint or arrest system.

SAFETY MONITOR

A safety monitor system must be used in conjunction with a warning line system to guard against falls during roofing or leading edge work on low slope roofs. This system does not provide a physical means of preventing or arresting falls.

Ensure that the safety monitor system is addressed in the fall protection work plan, including the name of the safety monitor(s) and their training in both safety monitor and warning line systems. Do not use during adverse weather.

The safety monitor(s) must be a Competent Person trained in safety monitor and warning line systems, and will:

- Have control authority over the work as it relates to fall protection
- Be instantly distinguishable over members of the work crew (wear brightly colored vest)
- Perform no other duties
- Have clear unobstructed view of workers and maintain normal voice communication
- Supervise no more than eight workers at one time.
- Warn employees when they may be unaware of a fall hazard or acting in an unsafe manner.

SAFETY WATCH

A safety watch system is a fall protection system, in which a Competent Person monitors one worker engaged in repair work or servicing equipment on low slope roofs. A safety watch system requires:

- Only two employees be on the roof—one employee as the safety watch and one employee performing the work
- Employee performing the task must comply with fall hazard warnings from the safety watch
- Work must not be within 6 feet of the roof edge
- No mechanical equipment can be used
- Do not use during adverse weather

The employee acting as the safety watch must:

- Be a Competent Person
- Have full control over work related to fall protection
- Have clear, unobstructed view of the worker
- Able to maintain normal voice communication
- Perform no other duties

Please contact EH&S at 206.543.7262 for more information about fall protection.