



Fall Protection

Susan Harwood Grant Training Program
2019

Commercial Roof Fall Safety



Learning Objectives

- Understand the difference between a low sloped roof and steep sloped roof
- Understand the responsibilities of the safety monitor
- Understand the requirements for warning line systems
- Identify safe work practices while performing roofing work



Roofing Definitions

- ***Roof***
 - means the exterior surface on the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily become the top surface of a building.
- ***Roofing work***
 - means 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.



Low slope vs. Steep slope

- **Low slope roof**
 - means a roof having a slope less than or equal to 4 in 12 (vertical to horizontal).
- **Steep slope roof**
 - means a roof having a slope greater than 4 in 12 (vertical to horizontal).



Roofing Work on Low-slope Roofs

- Each employee engaged in roofing activities on low slope roofs, shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or in combination with warning line system and/or a safety monitoring system.



Roofing Work on Steep slope Roofs

- Each employee on a steep slope roof with unprotected sides and edges 6 feet (1.8 m) or more above lower levels shall be protected from falling by guardrail systems with toe boards, safety net systems, or personal fall arrest systems.



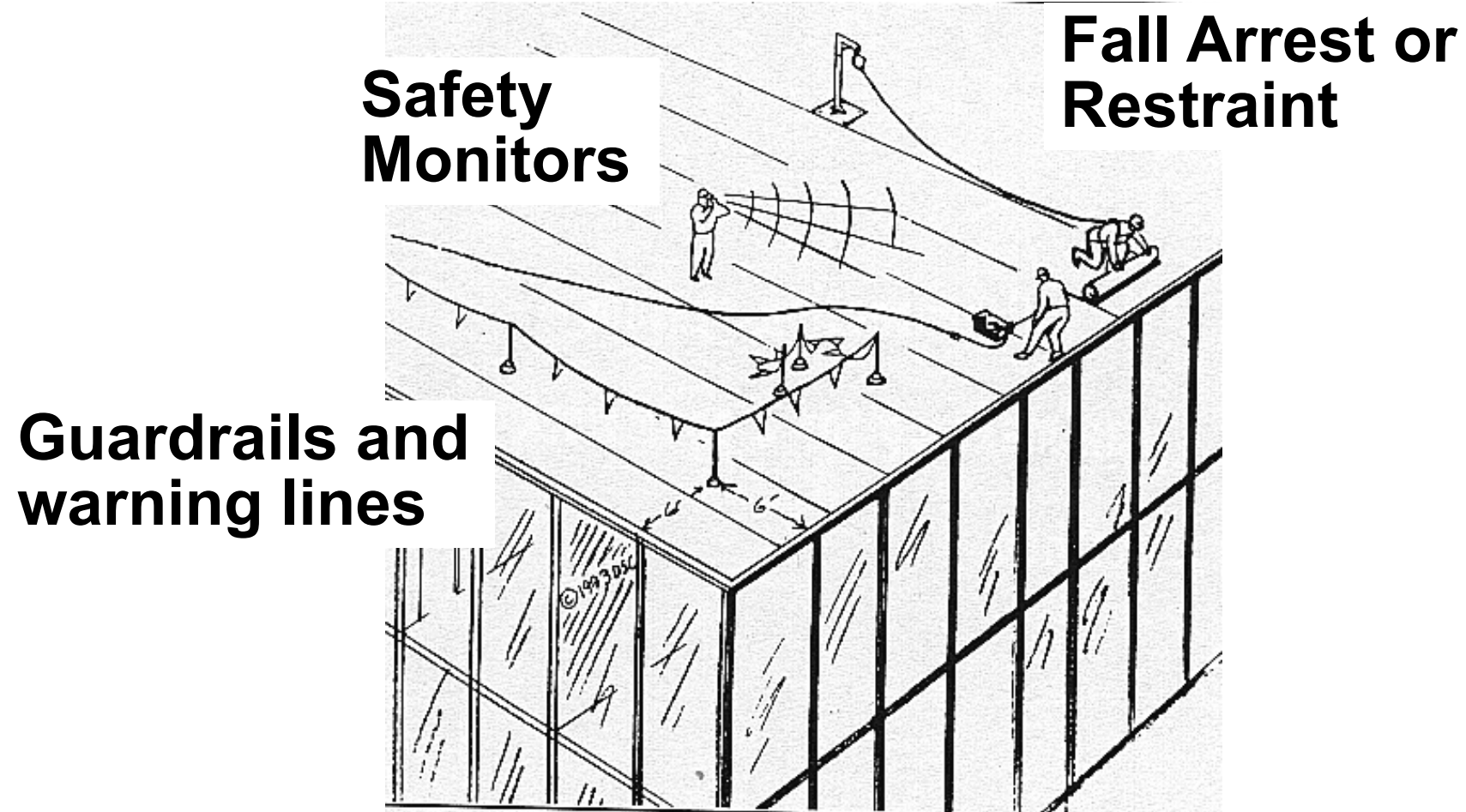
Parapet Walls

- Parapet walls must be at least 39" high or roof fall protection must be provided.





Methods of Roof Fall Protection





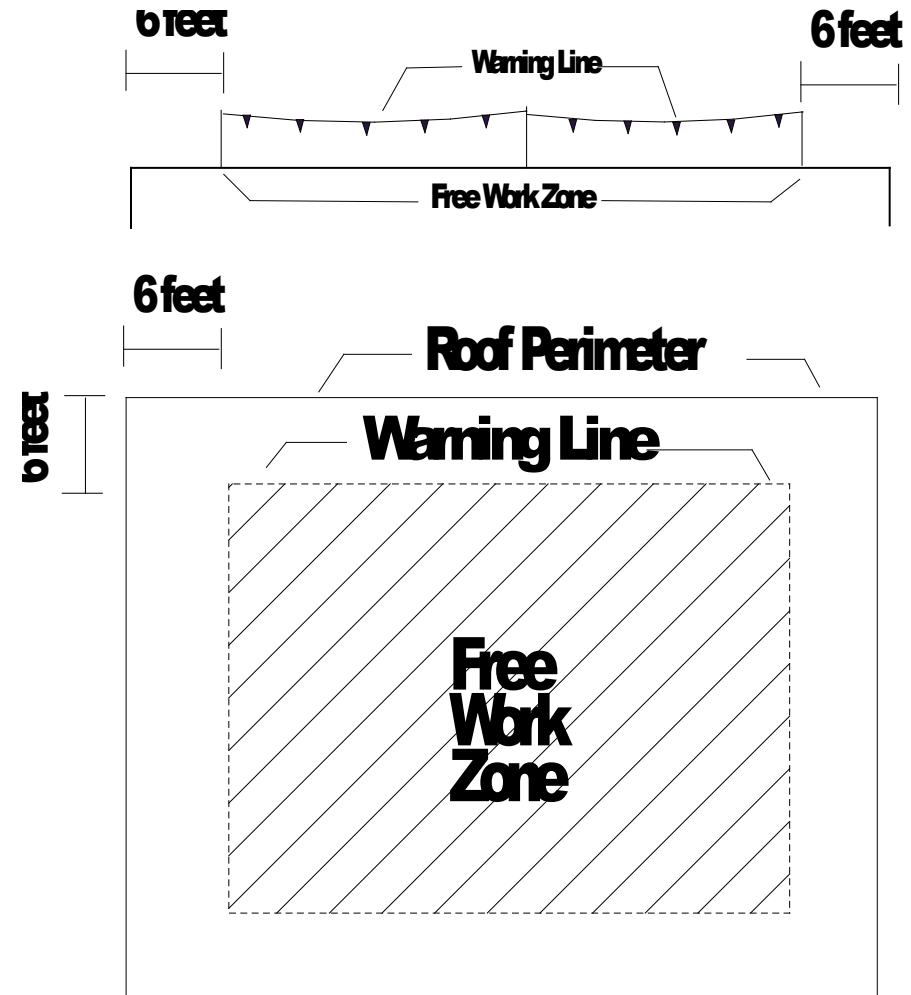
No Fall Protection!!





Roof Warning Lines

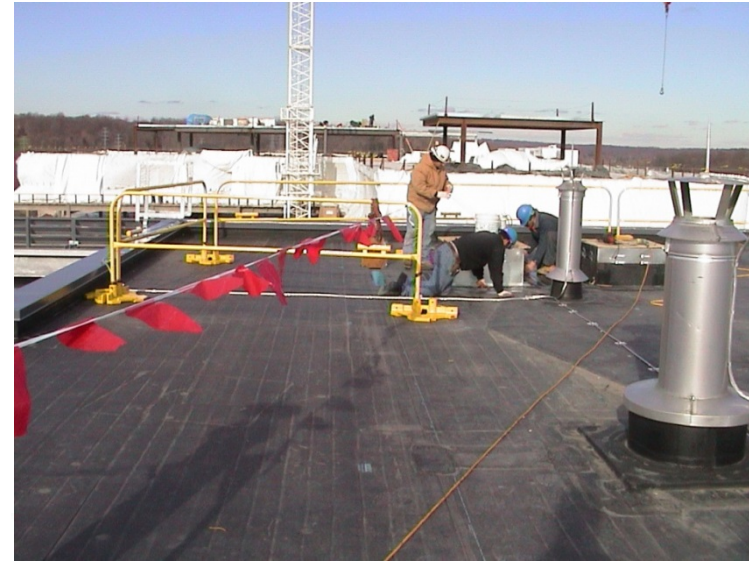
- For use on flat or low sloped roofs and along rake edges of steeper roofs.
- Must be at least 6 feet back from edges. (10 feet when mechanical equipment is used.)
- Lines must remain between 34-39"
- Must have a minimum tensile strength of 500 lbs..





Warning Line Requirements

- Warning lines must be established before work begins.
- All workers must be trained.
- No work outside warning lines without fall protection.





Safety Monitors

- May be used on flat and low slope roofs.
- Safety monitoring should be used sparingly.
- Employees must comply promptly with warnings and directions.

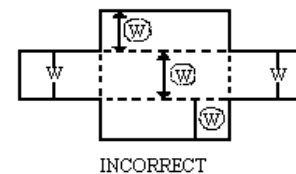
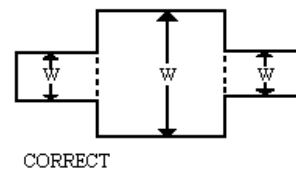
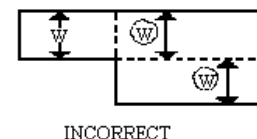
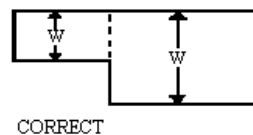
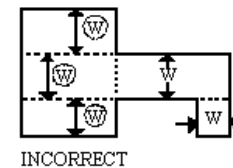
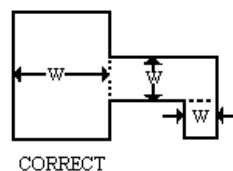




Limits of Safety Monitoring

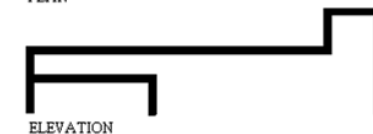
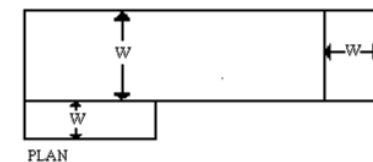
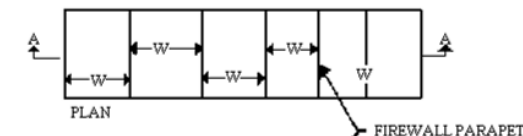
- Roof sections to be designated for protection under safety monitoring must be less than 50 feet in width.
- Large roofs can be broken into sections.

EXAMPLE C.



EXAMPLE D.

SEPARATE, NON-CONTIGUOUS ROOF AREAS





Safety Monitor Responsibilities

- The safety monitor shall be competent to recognize fall hazards.
- Establishes the procedure to protect.
- Must be on the same surface and within sight of the employees.
- Close enough to communicate orally with the employees.
- Have no other responsibilities that can take their attention away.





High Flat Roofs

- While warning lines and safety monitors are allowed by OSHA, guardrails or fall arrest or restraint are safer protections.





Weighted Portable Guardrails





Skylights



Must be protected



Sky Light Protection



Grates



Covers



Roof Hatches

- Hatch entrances need to be protected if too close the roof edge.
- Hatches should be considered holes when open.





Roof & Deck Anchors

Permanent
Anchors



Wood Roof
Anchor



Permanent Anchors must be engineered to support 5,000 pounds or 2 times the maximum intended loads and be attached to structural elements



Temporary Roof Anchors



- Roof anchors that are intended for fall arrest must be able to support 5,000 pounds or 2 times the maximum intended load.
- Some anchors are only intended for restraint and will not support fall arrest.
- Workers must follow manufactures requirements for installation and use of temporary anchors.

