

WARNING LINES IN COMMERCIAL CONSTRUCTION

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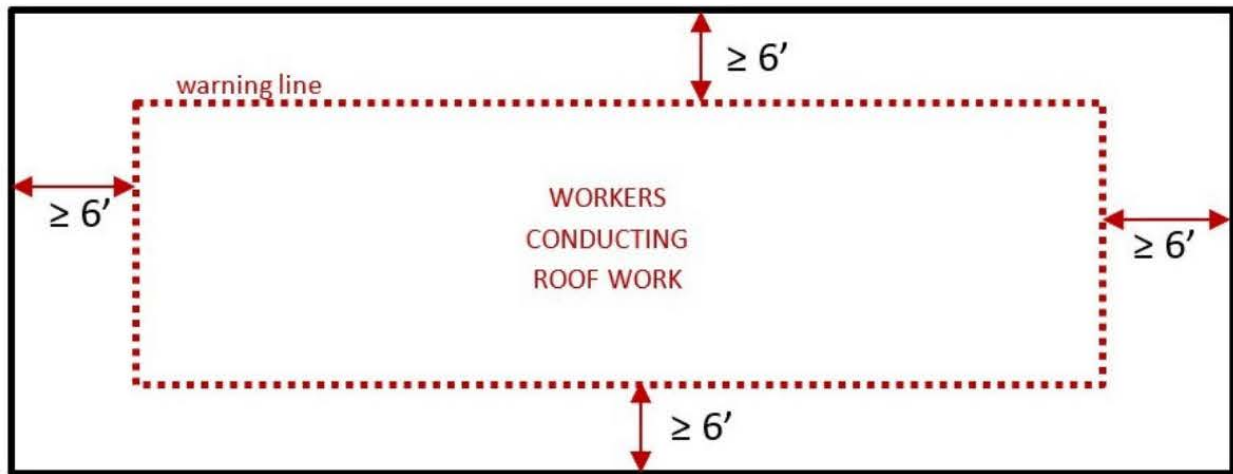
*Demystifying OSHA Regulations*

WHAT IS A WARNING LINE SYSTEM?

Fall protection continues to be one of OSHA's Top 10 most cited violation. It is extremely important for contractors to understand the OSHA regulations surrounding fall protection. In the construction industry especially, falls are the number one killer. One of the most commonly misunderstood issues regarding fall protection is the use of warning line systems. Many contractors erect a warning line and assume that they are then fully protected. However, OSHA regulations only allow warning lines to be used in certain situations and with very specific requirements.

A warning line system is a flagged line set up around the perimeter of a roof designed to alert workers that they are approaching an unprotected edge. OSHA defines an unprotected edge as "any side or edge (except at entrances to points of access) of a walking/working surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches (1.0 m) high." (29 CFR 1926.500(b)) In the preamble to the final fall protection rule, OSHA states there is no "safe" distance from an unprotected side or edge that would render fall protection unnecessary. This means that even if workers are working in the center of a roof 100 feet in width, they must still be protected from falling in some manner.

Still the #1
HAZARD



Warning lines can only be used on low-sloped roofs. A low-sloped roof is one that has a slope no greater than 4:12 (vertical:horizontal). Additionally, there are specific requirements based on the type of work being performed on the roof.

ROOFING WORK

Let's discuss "roofing" work first. OSHA defines roofing work as "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."

When roofing work is being conducted on a low-slope roof, OSHA allows warning lines to be used in conjunction with:

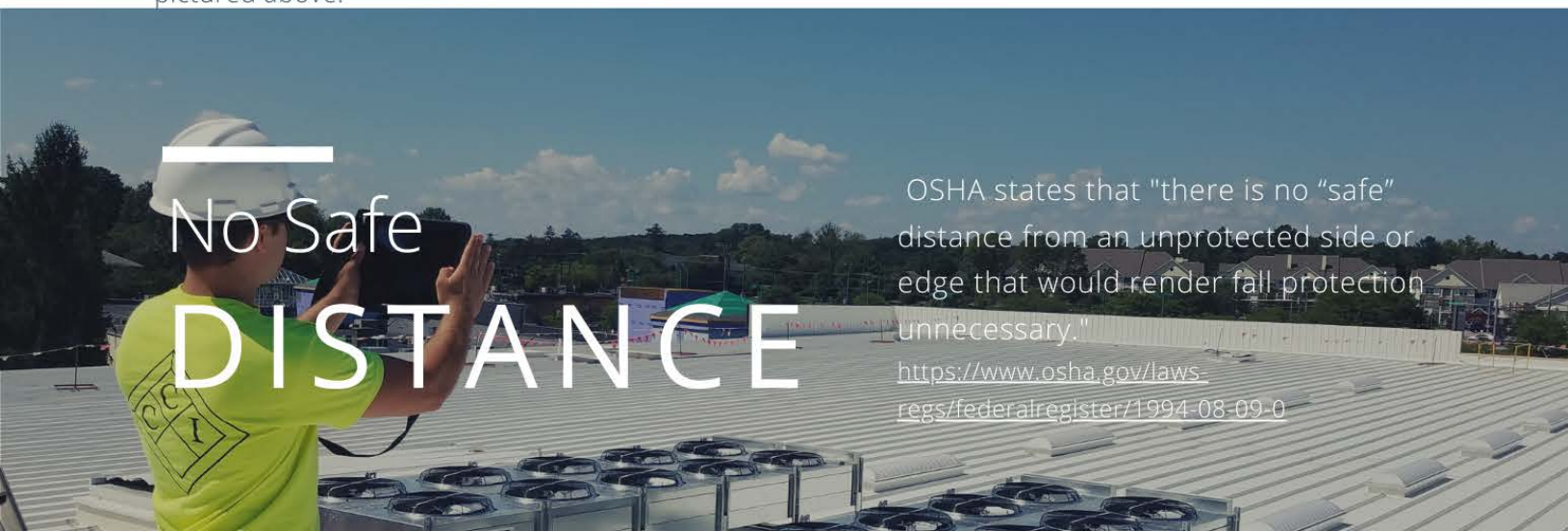
- a guardrail system,
- a safety net system,
- a personal fall arrest system, or
- a safety monitor.

In these cases, a warning line system may be set up no less than 6 feet from the unprotected edge, as pictured above.

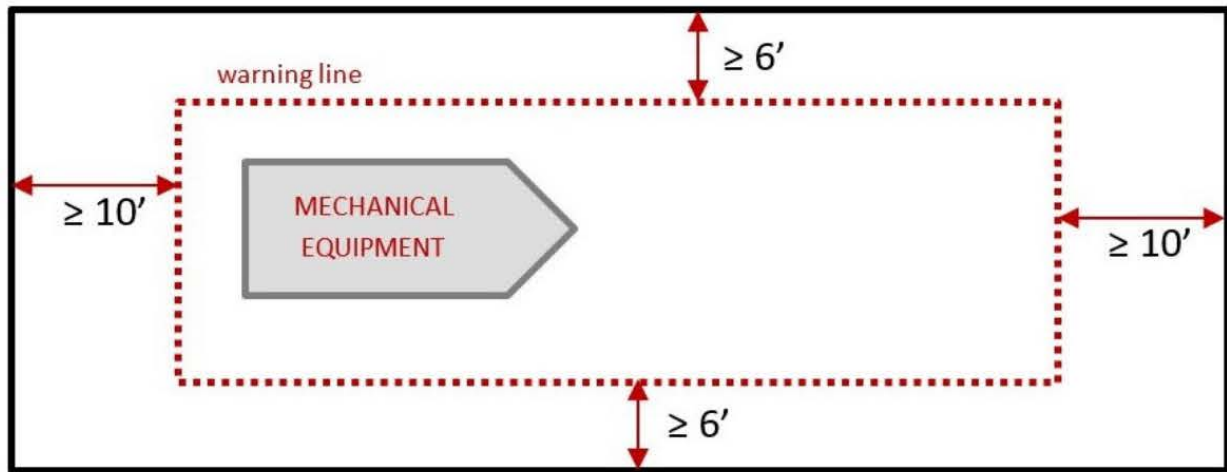
No Safe
DISTANCE

OSHA states that "there is no "safe" distance from an unprotected side or edge that would render fall protection unnecessary."

<https://www.osha.gov/laws-regs/federalregister/1994-08-09-0>



If mechanical equipment is being used on the roof, the warning line must be set up no less than 6 feet from the edge parallel to the direction the equipment is moving in and no less than 10 feet back from the edge which is perpendicular to the direction the equipment is moving in, as seen here:

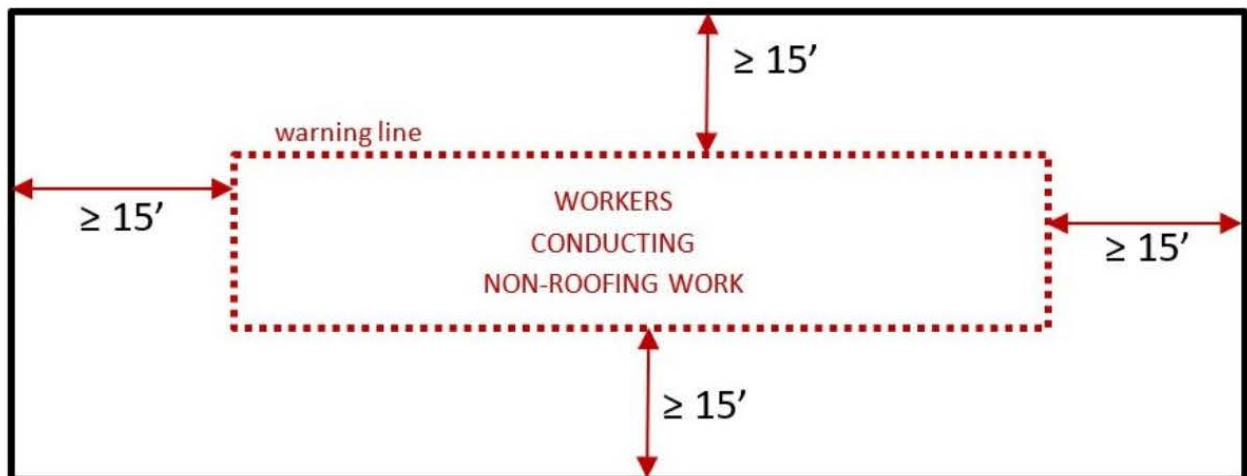


NON-ROOFING WORK

For non-roofing activities, OSHA instituted a *de minimus* policy. This means that a warning line system can be used for non-roofing activities if it meets all of the following criteria:

1. The warning line is set up no less than 15 feet from the unprotected edge,
2. The warning line is set up in compliance with OSHA regulations specifying proper warning line systems (more on this below),
3. No work is taking place outside of the warning line, and
4. The employer has put in place an effective policy that prohibits employees from going past the warning line.

This applies to all work taking place on a low-slope roof that does not meet OSHA's definition for Roofing Work.



SET UP REQUIREMENTS



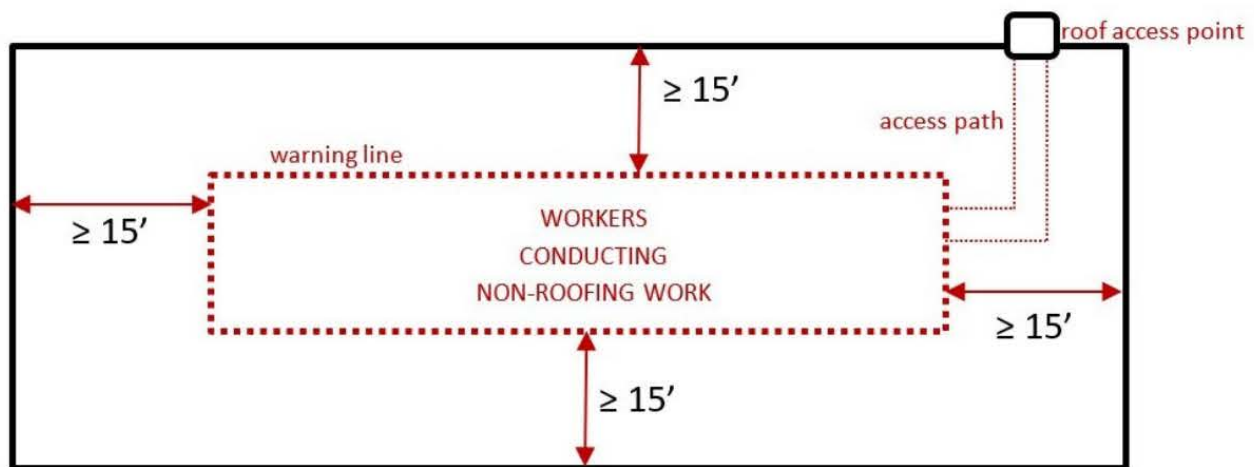
A properly assembled warning line system will meet all of the following requirements:

- Set up around all sides of the work area; it should fully enclose the workers inside.
- Line is made out of rope, wire, or chain.
- High-visibility flags provided at 6-foot intervals along the line.
- The height of the line from the roof surface at its lowest point (including sag) is no lower than 34 inches.
- The maximum height is no more than 39 inches from the roof surface.
- Is strong enough that it won't tip if 16 pounds of force are applied to the line or stanchions.
- The line is attached to the stanchions in such a way that pulling on one section doesn't take up slack in other sections.

One of the most common infractions we see regarding warning lines on construction sites is the lack of maintenance. It's very easy for warning lines to get knocked over, moved around, or become damaged due to environmental causes. If the warning line system is to be used over time, it's important that a competent person inspects the system on a daily basis. Ensure that the line is set up at the appropriate distance from the unprotected edge and that it is taut and meets the height requirements specified above. If the line or flagging is becoming faded over time, it must be replaced.

ACCESS AND EGRESS

So now that we have the warning line system set up properly, how do we safely get the workers and materials/equipment inside of it? If roof access is only available outside the warning line, then an access path should be created out of warning line material to safely guide them to the working area. Once the worker is inside the warning line system, a means of closing off the access path where it joins the warning line system should be in place. Alternatively, the access path can be created in an L-shape. This prevents a worker from inadvertently entering the access path and falling off the edge.



SAFETY MONITOR REQUIREMENTS

In situations where roofing work is taking place on a low-slope roof, the great benefit of using a warning line system is that conventional methods of fall protection, such as guardrails, safety net systems, and personal fall arrest systems, don't necessarily have to be used if a Safety Monitor is in place. A safety-monitoring system provides a competent person who is responsible for recognizing and warning employees of fall hazards. Their only job is to watch the workers and ensure that no one is in danger of falling. Nothing should take away the attention of the Safety Monitor, including cell phones or other electronic devices.

Additional requirements for the Safety Monitor are as follows:

- They must be on the same surface and able to see the employee(s) being monitored
- They must be close enough to the employee(s) being monitored to effectively communicate with them
- They must warn the employee when it appears that the employee is unaware of a fall hazard or is acting in an unsafe manner



PLAN, PROVIDE, TRAIN

It is vital that jobsite management plan ahead to determine the kind of fall protection that will be in place on their site. Set up your employees and subcontractors for success. Decide if a warning line system is feasible on your particular site and then provide the materials that will be needed. All employees and subcontractors must be trained on the warning line system requirements. Stress how important it is that they not work between the warning line and the unprotected edge without having another method of fall protection in place, and let them know what that method will be.

Warning line systems are complex to understand and one of several means of fall protection. At the very least, knowing the requirements for warning line systems and ensuring they are used properly on your site could save you from a costly OSHA citation. At best, it could save a life.



ABOUT COMPLIANCE CONSULTANTS, INC.

Compliance Consultants, Inc. (CCI) empowers your business to achieve greater productivity by protecting your employees' health and safety from every angle. We provide comprehensive workplace safety consulting services. Whether you're seeking expert guidance for a single issue or a long-term partner for inspections, training, or reporting, CCI can customize a solution that fits your business needs.

Compliance Consultants Inc. is a woman-owned and family-operated business located in Delaware County, PA and serving all of PA, NJ, DE, and further. CCI was founded by Michael J. Cunningham, Sr. in 1986 with the belief that every working man and woman has the right to come home safely at the end of the day.

Today, Terri Collins and Scott Boroi run the company as President and Vice President respectively. CCI maintains its national certification as a Women's Business Enterprise (WBE) and Woman-Owned Small Business (WOSB) by the Women's Business Enterprise National Council (WBENC).

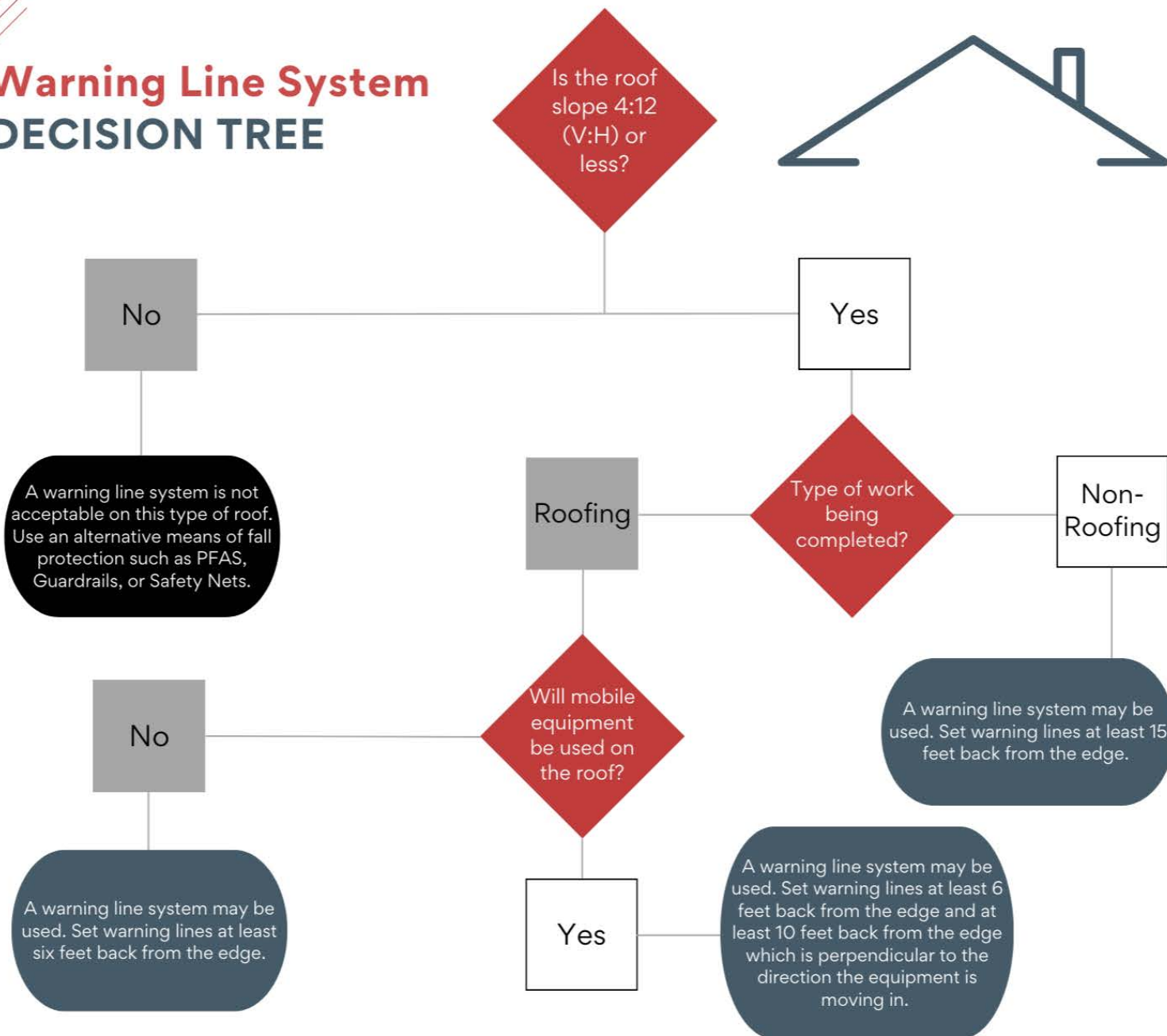


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Warning Line System DECISION TREE



Warning Line System DAILY INSPECTION CHECKLIST

1. Does the warning line fully enclose the workers?	Yes	No
2. Is the warning line set back from the edge at the correct distance?	Yes	No
3. Is the warning line 34"-39" above the working surface?	Yes	No
4. Is the warning line flagged at six-foot intervals with high-visibility material?	Yes	No
5. Is an access path provided?	Yes	No
6. Are all workers staying inside the warning line system at all times?	Yes	No
7. Are all workers trained on the warning line policy?	Yes	No