

North Carolina Department of Labor
Occupational Safety and Health Division

Raleigh, North Carolina

Field Information System

Standards Notice 65

Subject: The Use of Warning Lines Alone For Fall Protection on Low Sloped Roofs

A. Discussion:

Fall protection on low-sloped roofs is governed by 29 CFR 1926.501(b)(10), which states:

“Except as otherwise provided in paragraph (b) of this section, each employee engaged in roofing activities on low-slope roofs, with unprotected sides and edges six (6) feet or more above lower levels shall be protected from falling by guardrail systems, safety net systems, personal fall arrest systems, or a combination of warning line system and guardrail system, warning line system and safety net system, or warning line system and personal fall arrest system, or warning line system and safety monitoring system. Or, on roofs 50 feet or less in width, the use of a safety monitoring system alone is permitted.”

The use of warning lines as a substitute for fall protection is allowed by this standard, but only when utilized with a second component: guardrail, safety net, personal fall arrest, or safety monitoring system. The use of warning lines alone as fall protection is not recognized by the standard.

However, on July 23, 1996, The USDOL Office of Construction Standards and Compliance Assistance issued a letter of interpretation which directly affected the implementation of the standard. That letter stated:

“You questioned the need for both a warning line system and safety monitor on roofs or floors more than 50 ft. wide. Once again, the warning line systems are for those engaged in low sloped roofing activity. As addressed in 29 CFR 1926.501(a)(10), individuals involved in roofing work on low-sloped roofs must be protected from falling when exposed to unprotected sides and edges 6 feet or more above lower levels. This section gives several means of protection, one of which is the combination of a warning line system and a safety monitoring system. The warning line system is in place to protect those working within its perimeter, and only at the time when workers are required to go beyond this system would the monitor be needed to perform those functions listed in paragraph (h). ...”

This interpretation has given rise to roofing contractors utilizing warning lines alone for fall protection for employees working on low sloped roofs.

The North Carolina Department of Labor, Division of Occupational Safety and Health finds this interpretation to be in error and in conflict with both the letter and intent of the standard, and therefore does not adopt this interpretation for North Carolina. Our interpretation is as follows:

Non-Residential Roofing Work

Fall protection options available for non-residential roofing work is limited to those listed in 29 CFR 1926.501(b)(10): guardrail, safety net, or personal fall arrest systems, alone or in tandem with warning lines; or warning lines in tandem with a safety monitoring system. The use of a fall protection plan in lieu of the above is not permitted by the standards, therefore any other alternative means – such as controlled access zones – are also not available.

Section I (Background) of the Preamble states the purpose of this Subpart as follows: “In developing this final rule, OSHA has focused on requiring employers to provide construction employees with a positive method of protection against fall hazards wherever possible.” Additionally, the Preamble contains the following paragraph addressing warning lines and safety monitoring systems:

“OSHA believes the difficulties with conventional guarding systems (referred to in the standard as “motion-stopping-safety (MSS) systems”) during the performance of built-up roofing work, will be avoided by allowing the use of a warning line and/or safety monitoring system. OSHA explained that a warning line “serves to warn and remind employees that they are approaching or working near a fall hazard by providing a direct physical contact with the employee. The contact attracts the employee’s attention, enabling the employee to stop in time to avoid falling off the roof.” The safety monitoring system is a verbal warning system. OSHA describes the warning line system with safety monitoring systems as an “alternative system of fall protection” which are “not intended to serve as positive fall restraints, but only as warning systems.”

This paragraph delineates the point that neither safety monitoring systems nor warning lines are fall protection in themselves, but only warning systems. The use of a warning system alone does not meet the purpose of Subpart M, because it does not protect the employee from the fall. Warning lines by their nature – and as regulated in 29 CFR 1926.502(f) – can be relatively flimsy, easily defeated, and easily removed. The safety monitoring system is a little better, since it relies on a human who can observe actual events and make instant decisions in adjusting employee activities, but still does not prevent a fall from occurring.

However, the two warning systems combined – and only when combined - is recognized by the standard as an alternative means of protection where the three primary fall protection systems are not feasible. This remains true even when all employees are

instructed to remain inside the warning line barrier. The monitor will continually observe the warning line to ensure it stays in place and that employees do not cross over into the danger zone.

A safety monitoring system alone – without warning lines – is permitted in 29 CFR 1926.501(b)(10) where the width of the roof is 50 feet or less. The Preamble explains that this exception was added because the requirement of a warning line on these smaller roofs may not leave enough room to perform work. However, nowhere in the standards is a warning line without a second tandem safety system permitted.

The requirement of the two systems in tandem has been affirmed in a 1998 ruling by the Federal OSHA Review Commission (Lancaster Enterprises, Inc. dba Orbit Roofing), for a citation for 29 CFR 1926.501(b)(10) where the employer relied on warning lines alone. Employees continually moved the warning lines where they interfered with the work, which underscores the point that warning lines alone are insufficient as fall protection.

The USDOL Office of Construction Standards and Compliance Assistance has on August 1, 2000 issued another letter of interpretation addressing the use of warning lines alone as fall protection. Although this letter specifically addresses the use of warning lines for trades other than roofers, it is applicable to roofing work and effectively amends the 1996 interpretation. This interpretation twice restates the requirement that warning lines must be used in combination with other measures. It also interprets that the use of warning lines alone would be a de minimis violation of the standard if the line is erected fifteen or more feet from the edge and no work is performed between the warning line and an unprotected edge. Specifically, it states:

“At 15 feet from the edge, a warning line, combined with effective work rules, can be expected to prevent workers from going past the line and approaching the edge. Also, at that distance, the failure of a barrier to restrain a worker from unintentionally crossing it would not place the worker in immediate risk of falling off the edge.”

De minimis violations are those where the standard has been technically violated but where the violation does not constitute a danger to employees. North Carolina's state plan does not include de minimis violations; however, the North Carolina Operations Manual requires the identification of a hazard and employees exposed to that hazard for the issuance of a citation.

The North Carolina Department of Labor, Division of Occupational Safety and Health concludes that the use of warning lines for roofing work on low sloped roofs qualifies as fall protection only if one of the following systems is also utilized in tandem:

1. Guardrail, safety net, or personal fall arrest system in compliance with the appropriate subsection of 29 CFR 1926.502.
2. Safety monitoring system in compliance with 29 CFR 1926.502(h).

3. A minimum distance of 15 feet from the warning line to the unprotected sides or edge, providing all the conditions outlined in the 2000 letter of interpretation are met and the Compliance Officer does not identify evidence of a hazard and an exposed employee.

Fall Protection Plans for Low Sloped Roof Work

29 CFR 1926.501(b) allows the use of fall protection plans for three specific activities: leading edge work, precast concrete erection, and residential construction. A fall protection plan may only be used where the employer can show that compliance with 29 CFR 1926.501(b)(10) is infeasible and/or creates a greater hazard. The plan must be specific to the particular job site and under the supervision of a competent person. Each area where conventional fall protection cannot be used is designated as a controlled access zone. Where no other alternative measure has been implemented, a safety monitoring system must be implemented.

The Preamble to Subpart M addresses fall protection plans as follows:

“...when the employer demonstrates that all conventional fall protection systems are infeasible (i.e., it is impossible to perform the construction work or technologically impossible to use) or create a greater hazard, the final rule requires the employer to develop and implement a fall protection plan. A fall protection plan, in turn, requires the employer to establish a controlled access zone and to implement a safety monitoring system if no other alternative measure has been implemented in the zone where conventional fall protection is not being used.”

This paragraph establishes that controlled access zones are not “alternative measures” which render safety monitoring unnecessary. Instead, both zones and monitors are required in the absence of conventional fall protection. Since warning lines have been established as “warning systems” as opposed to fall protection, the use of a warning line or controlled access zone in a fall protection plan will automatically require the use of a safety monitoring system as well.

The North Carolina Department of Labor, Division of Occupational Safety and Health concludes that the use of warning lines alone as fall protection is not a viable option under a fall protection plan. Warning lines erected fifteen or more feet from the unprotected sides or edges are recognized generally as not having an associated hazard unless one is identified by the Compliance Officer.

Other Trades

The August 1, 2000 OSHA letter of interpretation specifically addresses the use of warning lines alone for trades other than roofing working on a low-sloped roof, and has been previously discussed. The North Carolina Department of Labor, Division of

Occupational Safety and Health concludes that trades other than roofing that do not have the option of a fall protection plan are considered adequately protected by warning line if:

1. the employees are performing no work or work-related activity between the warning line and the unprotected side or edge,
2. the employer has effectively implemented a work rule prohibiting going past the warning line, and
3. either of the following are met:
 - a. the lines are erected as a controlled access zone by an authorized employer (either a roofer or an employer with a fall protection plan) and a safety monitor is in place and actively monitoring the warning lines; or
 - b. the warning lines are erected 15 or more feet from the unprotected sides or edge, the lines meet all the requirements of 29 CFR 1926.502(f)(2), and no employees are working between the warning line and the unprotected side or edge.

If all three conditions above cannot be met, the employer must provide fall protection as dictated by the relevant standard in 29 CFR 1926.501(b).

B. Action:

1. A citation shall be issued where roofing work is performed on low sloped roofs utilizing warning lines alone for fall protection, where such lines are erected less than 15 feet from the unprotected side or edge.
2. A citation shall be issued where roofing work is performed on a low sloped roof utilizing warning lines erected less than 6 feet from the edge where mechanical equipment is not being used or on the sides parallel to the direction of mechanical equipment, and where warning lines are erected less than 10 feet on sides perpendicular to the direction of mechanical equipment, regardless of the utilization of tandem fall protection systems.
3. No citation shall be issued where roofing work is performed on a low sloped roof utilizing warning lines alone where all of the following conditions are met:
 - a. The warning lines are erected around all sides of the roof work area;
 - b. The warning lines are erected 15 or more feet from all unprotected sides or edges;
 - c. The warning line meets or exceeds the requirements in 29 CFR 1926.502(f)(2);
 - d. No work or work-related activity is to take place in the area between the warning line and the edge
 - e. The employer effectively implements a work rule prohibiting the employees from going past the warning line; and

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- f. The Compliance Officer can not identify an actual hazard and an employee exposed to that hazard.

Note: For the purposes of 3.e. above, “effective” is defined as no instances of employees observed or reported outside the warning lines.

Where conditions do not meet all of the above, a citation shall be issued.

C. Expiration: This notice shall be effective on the date it is signed and shall remain in effect until revised, replaced, or cancelled.

Signed on Original
Ed Preston III
Safety Standards Officer

Signed on Original
John H. Johnson
Director

12/10/02
Date of Signature