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Fall Protection: Misconceptions & Myths; Working Within the OSHA System

(Part of Professional Safety magazine, September 2007)

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IS 6 FT FROM AN UNPROTECTED EDGE adequate clearance to meet the federal OSHA requirements for employee fall protection safety? This myth and several other common misconceptions are the subject of this article.

Since its inception, OSHA has had a profound influence on the workplace, especially through the 29 CFR 1910 (general industry) and 29 CFR 1926 (construction) regulations. As with most rules promoting a change of conduct, confusion exists regarding the interpretation of these rules and questions about fall protection are among them. This confusion is evidenced by the issuance of more than 365 letters of interpretation by OSHA for fall protection alone in response to questions seeking clarification.

Over the years, many managers, workers and SH&E professionals have become “self-interpreters,” reaching conclusions that do not conform to either the standards or the published interpretations. Consequently, several myths have become prevalent and convenient standards of conduct despite the fact that they are erroneous, do not provide proper worker protection and are citable.

Because of these myths, some may conclude that many SH&E professionals are either not aware of or do not consider the letters of interpretation or proposed rulemaking standards

issued by OSHA. Both of these tools are approved by OSHA for the development of procedures and enforcement of work rules, providing the best information available for worker safety.

Several myths and/or misconceptions have been promulgated to the point that they have become accepted facts, at least until an incident occurs and OSHA becomes involved. The initial question in this article is one such myth. It is a common misconception that the worker is safe and in compliance as long as a distance of 6 ft is maintained from an unprotected edge. However, no such carte blanche rule exists and never has in the OSHA regulations.

To examine some of the common myths and misconceptions, this article focuses on OSHA 29 CFR 1910 Subpart D, Walking-Working Surfaces, and Subpart I, PPE; 29 CFR 1926 Subpart M, Fall Protection and Subpart X, Stairways and Ladders; and the letters of interpretation and proposed rulemaking concerning fall protection. Steel erection, residential construction, aerial lifts and other fall protection issues are not covered. Compliance issues may be different than those presented if operations are being conducted under a state plan. Another myth is the generally stated belief that a state plan is as stringent or more stringent than federal OSHA. Comparison may prove otherwise.

Letters of Interpretation & Proposed Rulemaking

Many SH&E professionals are aware of these tools and diligently use them, yet most people outside of the profession are not aware of these tools. Both are readily accessible on OSHA's website (www.osha.gov). On the right-hand side of the site, under Laws & Regulations, visitors will see links to both standards and interpretations.

A search in the interpretations section using the term fall protection returns 369 results. This information can be sorted by relevance or title. Sorting by title works best because the date is always first in the title and this provides a chronological reference. When a new letter is published, the search is simplified by going to the most recently dated letter. Each letter includes a disclaimer explaining that the letter is how this particular issue is to be interpreted. OSHA can and does use the letters of interpretation to, in effect, make new regulations, as well as to reinforce or relax provisions of the standards.

Another term with which SH&E practitioners should be familiar is de minimis. By definition, "de minimis conditions are violations of standards that for whatever reason do not at the time of inspection have an immediate relationship to safety and health and therefore are not included in a citation." This becomes an effective tool when introducing deviations from published standards.

Proposed rulemaking also is easy to access on the OSHA website. It is found in the Federal Registers section, which is located in the Laws & Regulations area. For fall protection, the proposed rulemaking of concern proposed for 29 CFR 1910 Subparts D and I originated in the 1980s, was republished for comment in 1990 and resubmitted for comment in 2003. The new interpretations and tools contained in this document are well worth the search.

This will become evident as the myths and misconceptions are explored.

Common Misconceptions & Myths

Misconception: 29 CFR 1910 & 29 CFR 1926 Rules Are Interchangeable

This misconception is common. Part 1910 covers general industry, which basically includes operations and maintenance. Part 1926 covers construction, which includes alteration, modification, roofing, painting and demolition. The category of work under which the task falls must be determined to properly apply the standards. For example, if the standard—including interpretation letters and proposed rulemaking—cites a Part 1926 control, the assumption cannot be made that it is acceptable to use for maintenance, which falls under Part 1910.

For example, 29 CFR 1910.23(c) states, “Every opensided floor or platform 4 ft above adjacent floor or ground level shall be guarded by a standard railing on all open sides except where there is entrance to a ramp, stairway or fixed ladder.” That’s it. The standard authorizes a guardrail but nothing else.

However, in 1976, OSHA published a proposed revision to Part 1910, Subparts D and I, allowing the use of alternate fall protection, which would include the use of personal fall protection, with the caveat where the use of guardrails is not feasible. In April 1990, OSHA republished the proposed Part 1910 rulemaking (reissued in May 2003) that defines acceptable general industry fall protection to include personal fall arrest systems (PFAS), work positioning systems, travel restricting systems (fall restraint), fixed ladder climbing systems, hole covers, safety nets and a new proposed “designated area” category.

With changes such as this, the gap between the general industry and construction standards is closing, but differences remain. Some differences are very obvious, such as the basic difference in the trigger height that requires fall protection. The general industry standard states that fall protection becomes an issue when the walking/working surface is above 4 ft, while the construction standard uses 6 ft of height as the unprotected limit.

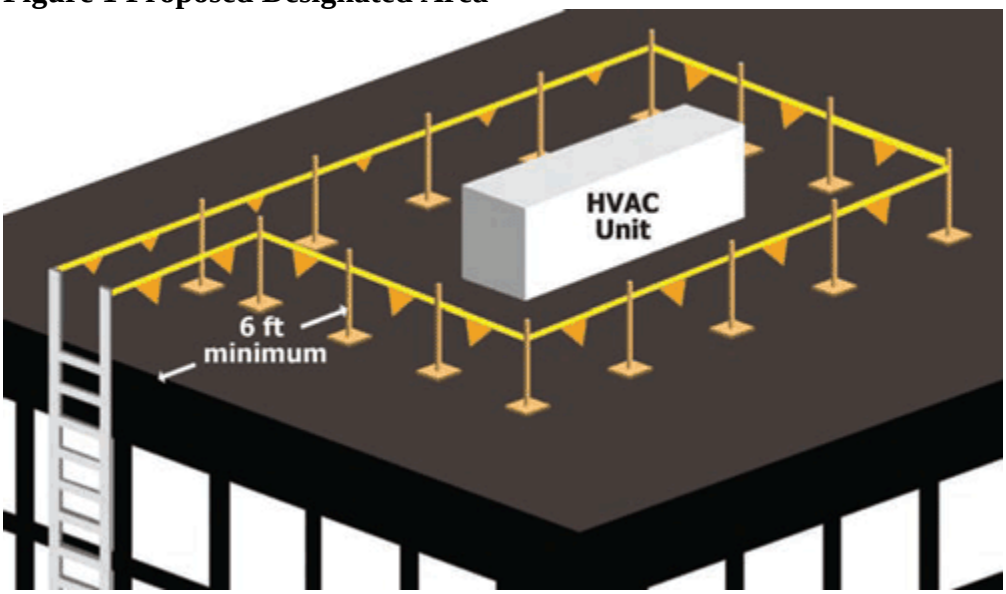
Myth: Six-Foot Rule

This myth involves the so-called 6-ft rule or “twostep rule” where distance alone is the protection. OSHA has never viewed as compliant the practice of remaining at least 6 ft away from the edge. The preamble to 29 CFR 1926, Subpart M, states the premise that “OSHA has determined that there is no safe distance from an unprotected side or edge that would render fall protection unnecessary.”

That interpretation was the rule until July 23, 1996, when a letter of interpretation was written that stipulated for a low-slope roof, “However, when employees working 50 to 100 ft away from the unprotected edge have been properly trained, then the situation can be considered a de minimis condition.”

In part, this “6 ft from the edge” myth has been reinforced by the misconception that state plans are more strict. For example, California accepts being 6 ft (horizontally) from an unprotected edge in its standards and has various trigger heights, depending on the activity or craft (California Department of Industrial Relations). The state of Washington has a 10-ft trigger height rule for both general industry and construction, but has no allowable horizontal distance without some form of fall protection in its standards (Washington State Department of Labor and Industries). Neither condition is as strict as federal OSHA so jurisdiction is important with respect to requirements.

Figure 1 Proposed Designated Area



Photos 1 (top) & 2 (bottom): Combined designated area and scaffold stairs.

Since not all equipment is located 50 ft or more from the edge, what protection systems are available and acceptable? The first step is to determine whether the task is a general industry or construction activity. For a general industry activity, the proposed "designated area" [proposed 29 CFR 1910.28(d)] is depicted in Figure 1. The designated area is similar to the 6-ft warning line for roofers, but several additional conditions must be met for it to apply. Remember, employer compliance with a proposed rule, in lieu of compliance with an existing rule, is considered a de minimis violation (Letter of Interpretation, Dec. 18, 1997).

The designated area criteria consists of:

- roof slope 4:12 [10 degrees or less (a low-slope roof)];
- constructed with ropes, wires or chains of 500-lb tensile strength (no barrier tape);
- horizontal members within the dimensions of 34 in. to 39 in.;
- must withstand a horizontal force of 16 lb, 30 in. above the base;
- complies with the provisions of proposed rulemaking 29 CFR 1910.28(d);
  Several conditions differ from the warning line criteria stated in 29 CFR 1926.502(f)(2) as well:
- work must be of a temporary nature;
- is to be erected as close to the work area as permitted by the task;
- perimeter to be no less than 6 ft from an unprotected edge;
- access to designated area by a clear path formed by two lines, same criteria for lines and stanchions as in the basic standard.

This is one of several choices, rather than requiring just the guardrail as originally stipulated in the standards. Other systems available are PFAS, fall restraint and safety net systems. While outside the scope of this article, some times the most effective alternative is scaffolding. A scaffold stairway is cost effective when tools and materials are required for a job. Photos 1 and 2 show an effective combination of a designated area and scaffold stairs which took less that 2 hours to erect.

Construction Exemption

One other type of activity bears mention as well. 29 CFR 1926, Subpart M, includes a fall protection exception [29 CFR 1926.500(a)(1)]: “The provisions of this subpart do not apply when employees are making an inspection, investigation or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed.” This exception is not activity-specific, but it specifically states construction work; therefore, it is not applicable to maintenance or operation-type activities covered in the general industry standards.

For example, a supervisor and/or employee must inspect the roof for potential repair work, including the associated flashing and gutters. They are making an assessment for potential roof work and since roof work falls under Part 1926, no fall protection is required. When inspecting for a maintenance activity (not construction) such as an electrician or mechanic checking an HVAC unit on a roof, the worker is not covered under this exemption and must be protected by some form of acceptable fall protection system.

Before discussing the construction authorized “nonconforming guardrail,” let’s clarify what fall protection systems are encompassed in the construction provisions of 29 CFR 1926.502. These commonly misunderstood applications are activity-specific and exclusive to the task specified:

- 1926.502(f): Warning line systems only apply to roofing work on low-slope roofs.
- 1926.502(g): Controlled access zones only apply to overhead bricklaying and related leading-edge work. Subpart R, Steel erection (not covered in this article) allows other applications.
- 1926.502(h): A safety monitoring system only applies to roofing work on low-slope roofs 50 ft wide or less or in excess of a 50-ft combination system (e.g., warning line system and safety monitoring system only for roofing work on low-sloped roofs).
- 1926.502(k): Other fall protection plans are only available for leading-edge work, precast concrete construction work or residential construction work.

As with the general industry standards, interpretation letters have allowed a modified warning line system, which is referred to as a nonconforming guardrail (Figure 2). This also is referred to as the 15-ft rule. A nonconforming guardrail (Letters of Interpretation, May 12, 2000, November 2002, December 2003, January 2005) is a de minimis violation constructed according to the same 29 CFR 1926.502(f)(2) provisions, with several different requirements:

- The warning line is used 15 ft (+) from the edge of the unprotected side or hole.
- No work is allowed between the warning line and the edge.
- The employer effectively implements a work rule prohibiting going beyond the warning line.

Nonconforming guardrails are similar to the designated area option, but contain significant

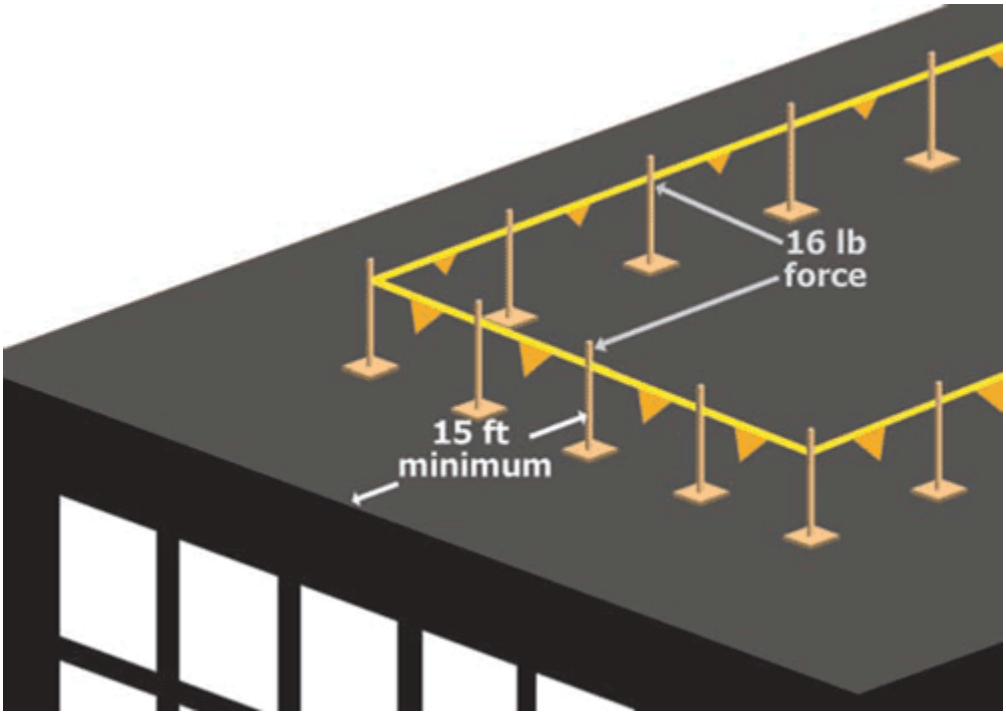
differences, such as requiring a 15-ft distance from an unprotected edge in lieu of 6 ft and an employer work rule prohibiting work past the line.

Calling OSHA directly for clarification (at 800- 321-OSHA) is another option. However, this strategy has several limitations. First, callers will go through a gatekeeper. Second, it can take several days or more to receive a response—one that will not be in writing. That said, the verbal communication can be helpful. The author recently received three verbal interpretations that apply to parts 1910 and 1926. The author was told that compliance offices have been instructed that these exceptions are to be treated as de minimis violations.

The first response concerned the “first man (men) up.” This refers to the workers who are engaged solely in erecting the fall protection or warning lines before the work commences. If fall protection (e.g., suitable anchors) is not feasible, the workers erecting the fall protection system are not required to be tied off. This is similar to scaffold erectors where lanyards become a greater hazard. Obviously, all precautions should be maintained, fall protection should be used where possible and distance from the edge kept to a maximum.

The second verbal interpretation indicated that for a short duration task, when the time and worker exposure of setting up temporary fall protection exceeds the task duration, the worker(s) may proceed directly away from the unprotected edge to the point of the task, then apply a fall protection system (e.g., tie off with fall arrest or fall restraint before going to work and remain tied off until the work is completed). The employee(s) may then unhook and walk straight toward the edge, keeping the unprotected edge in front of the worker(s) until reaching the access point. The third verbal interpretation stated that if the area requires frequent access, a designated area may be left in place upon job completion until a permanent fall protection system is installed. Remember, these were verbal interpretations from an OSHA compliance officer (delivered through an intermediary) in Washington, DC. One must use professional judgment and discretion when deciding whether to use this information.

Figure 2: Nonconforming Guardrail



Some fall protection myths have become convenient standards of conduct despite the fact that they are erroneous and do not provide proper worker protection.

Fall Restraint: Neither Myth nor Misconception

Fall restraint is neither a myth nor a misconception, even though it does not appear in the current standards, except as mentioned under 29 CFR 1926, Subpart R, Steel Erection. Restraint may be the answer to many required fall protection situations. Fall restraint is

using a physical apparatus, restraint or tether to prevent a fall. If a worker cannot fall, the hazard is eliminated and fall protection is not an issue. One must not confuse fall restraint with fall positioning. Fall restraint does not allow any fall distance, while fall positioning allows a fall distance not to exceed 2 ft.

OSHA Fall Protection Requirements

General industry: Operations and maintenance; trigger height = 4 ft above walking/working surface.
Construction: Construction, alterations, modifications, demolition, roofing, painting; trigger height = 6 ft above walking/ working surface.
Horizontal distance: Without fall protection—from unprotected edge = 50 ft minimum.
Free-fall distance: Never exceeds 6 ft.
Safety monitor: (Low slope) Roofing work only, roof > 50 ft requires warning line at 6 ft, monitor to edge.
Work positioning: Maximum free-fall = 2 ft, anchorage = 3,000 lb, connectors = 5,000 lb.
Controlled access zones: Overhand bricklaying and related leading-edge construction work only.
Guardrails, parapets: 39-45 in. high; withstand 200 lb at top rail; guardrails must have mid-rail and toeboards if tools, material can fall to lower level.
•**Materials**: Constructed of minimum 500-lb strength material (no barrier tape). Pipe 1½ in. minimum; Wood 2 x 4 in. minimum; two cables minimum ¼-in. diameter, top cable flagged at 6-ft intervals, no deflection under pressure below 39 in.
Skylights: 200-lb force cover; guardrail; or fall restraint/fall arrest; warning line systems.
Warning line systems: Low slope roofs only.
•General industry—"Designated Area"—minimum 6 ft from unprotected edge.
•Construction—"Nonconforming Guardrail"—minimum 15 ft from unprotected edge.
•System requirements—uprights withstand 16-lb force at 30-in. height; line to be rope, wire, chain of 500-lb tensile strength, flagged at 6-ft intervals; height 34-39 in.; line attached to uprights—no line slip.
Fall restraint: Worker's center of gravity cannot fall over the unprotected edge in any direction. Lanyard/rope = 3,000 lb; body belt or full body harness; anchor = 2 x force exerted, or 3,000 lb.
Personal fall arrest:
•Basic system = full-body harness, 6 ft shock-absorbing lanyard, 5,000 lb anchorage (per person); minimum clearance = 17.5 ft from anchor (6-ft lanyard, 3.5 ft shock absorber, 5 ft surface to dorsal D-ring, 1 ft harness stretch, 2 ft safety factor). Engineered anchor may be 3,600 lb.
•Self-retracting lifeline—5,000-lb anchorage (certain conditions 3,000 lb), minimum clearance; non-shock-absorbing lanyard = 5 ft; shock absorbing (read label) = 7.5 ft; account for pendulum effect.
Horizontal lifeline: (Designed by qualified person) minimum clearance = 17.5 ft + lifeline stretch.
Vertical lifeline: 5,000-lb anchor (only one worker per lifeline) for clearance add 1 ft for rope grab to activate, minimum clearance = 7.5 ft + lanyard length.
Ladder climbing devices: Maximum 9-in. connector between the ladder safety device and

a front (chest) D-ring, engineered support. Must limit fall distance to 2 ft or less.
Rescue planning: Prompt rescue—danger of suspension trauma.

Even a well planned fall protection program will fail if personnel on the job do not use the equipment or do not use it correctly.

According to OSHA, is fall restraint permissible instead of fall arrest in general industry and/or construction? For general industry, the proposed changes to 29 CFR 1910 Subparts D and I incorporate fall restraint as restraint line systems. When an employee is tethered, restraint line systems shall meet the applicable requirements of Subpart I [proposed 29 CFR 1910.128(c)(11)]. Restraint lines shall be capable of sustaining a tensile load of at least 3,000 lb. Body belts or full-body harnesses may be used. Fall restraint for general industry is only mentioned in the proposed rulemaking for Part 1910, not in the current standard.

Fall restraint is not mentioned in Part 1926, but this offers another example where interpretation letters play an important role. Construction has similar guidelines in two letters of interpretation, both dated November 1995. Therefore, the answer is yes, fall restraint may be used in both general industry and construction activities.

ANSI Z359 further defines fall restraint as the technique of securing an authorized person to an anchorage using a lanyard short enough to prevent a person's center of gravity from reaching the fall hazard. Is the lanyard limited to a 6-ft length? No, again the personal fall arrest system rules do not apply (there is no free fall). The limiting factor is that the tether is short enough to prevent a fall in any direction from an anchor, not just the location where the person is working.

Can a standard lanyard with a shock absorber be used? Yes, if it is long enough for the situation. Under no circumstances may lanyards be daisychained to extend the length. Snaphook to snaphook connections are not manufacturer-approved. For many applications, a 6-ft tether is adequate and a worker will not need to approach the roof edge. For example,

if the work is on an HVAC unit on a lowslope roof that is 10 ft from the edge, an anchor strap or cable can be put around the unit's structural support and the worker can use a regular lanyard connected to his/her harness. The worker should have plenty of unrestrained movement.

How much anchorage is required? The author recommends selecting a 3,000-lb anchor. However, the letter of interpretation for construction also allows an anchor that supports twice the potential load. The choice depends primarily on the location and roof pitch. Remember, more force will be generated if the worker slips or trips on a sloped surface.

Portable Ladder Use Gives Rise to Both Myths & Misconceptions

This myth/misconception pertains to portable ladders and the belief that fall protection is never required. OSHA's general industry standards contain no reference to fall protection for portable ladders, but a letter of interpretation cites ANSI A14.2-1990. That standard does not specify fall protection, but it states in 8.3.6, Side Loading, and in several other instances that "the user shall not overreach, but shall descend and relocate the ladder instead."

OSHA's construction standards [29 CFR 1926.500(a)(2)(vii)] state, "Requirements relating to fall protection for employees working on stairways and ladders are provided in Subpart X." Nothing in Subpart X states that fall protection on portable ladders is required. In addition, OSHA has issued several letters of interpretation confirming that fall protection is not required for portable ladder use (Letter of Interpretation, Jan. 13, 2000) as long as the employee is working within the envelope of the ladder (Letter of Interpretation, April 2, 1996).

What is the envelope of a portable ladder? It consists of these characteristics:

- a 4:1 climbing angle;
- climb facing the ladder;
- ladder (other than stepladder) tied off to prevent sideward slippage;
- firm footing for the ladder;
- employee able to maintain three-point contact while climbing;
- employee center of gravity (belt buckle) inside the side rails.

The center of gravity is not an OSHA rule, but it is part of manufacturers' instructions for ladder use and, therefore, OSHA enforceable as an industry standard. If any of these stated conditions are not met, fall protection is needed.

Myth: When You Don a Harness & Hook Up, You Are Always Protected

This may be the most dangerous myth. Add up the total distance of deployment for the lanyard and shock absorber on a personal fall arrest system. From the anchor D-ring a height of 17.5 ft is required. The maximum lanyard is 6 ft, the shock absorber can deploy up to 3.5 ft, the dorsal D-ring is seldom less than 5 ft from the walking/working surface for

most individuals, so allow a minimum of 1 ft for harness stretch, add 2 ft for a safety factor and that totals 17.5 ft (Figure 3). Now the anchor point that is 10 to 15 ft above the walking/working surface does not look so good—and in fact it is not effective at all.

One alternative for low-height fall arrest is the self-retracting lifeline (SRL). If the anchor D-ring connection is at the dorsal D-ring height on the harness or higher, free fall is limited to a distance of 2 to 4.5 ft. Depending on the SRL, it may be constructed to lock at 2 ft or it may have a clutch that allows additional deceleration not to exceed a total free fall and deceleration of more than 4.5 ft. Allowing for stretch and the safety factor, the total fall distance to allow for is between 5 and 7.5 ft.

One important consideration when using an SRL is whether the anchor point is directly over the worker's head. If not, what about the pendulum arc? The clearance distance may increase dramatically. Whatever distance the worker is horizontally from the anchor point will increase the final vertical height, plus the 5 to 7.5 ft required for activation after the swinging stops. The use of a trolley on a beam or horizontal lifeline, or relocating the anchor may be more desirable.

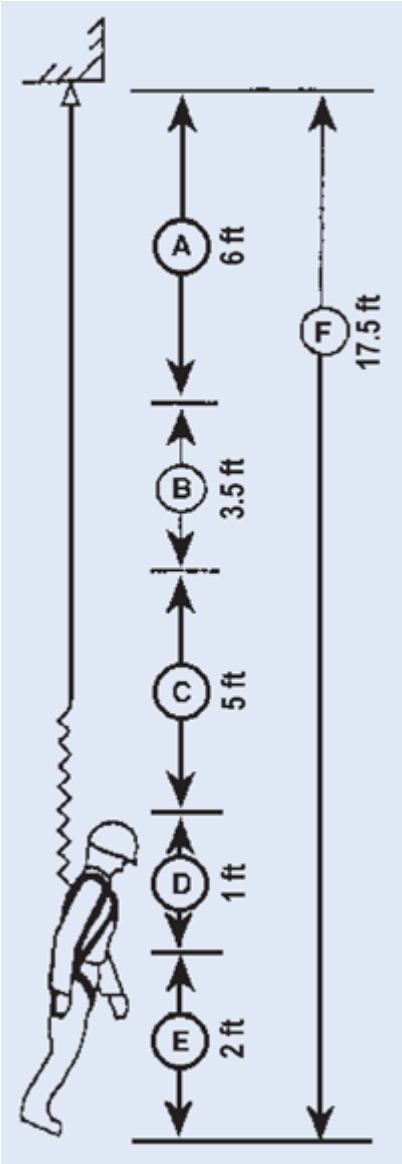
It also should be noted that an SRL is the lanyard, not an anchor. Workers must not attach another lanyard to the SRL. The standard double-acting snaphook is not designed to connect to another snaphook and doing so may put excessive gate loading forces on the connector, causing it to fail.

Another question is whether a horizontal lifeline is post-tensioned. To minimize the fall distance, a horizontal lifeline may be stretched when installed to eliminate some of the sag and stretching if someone falls, therefore decreasing the vertical clearance necessary for safety. If so, the employee's fall will be energetic and may have far-reaching horizontal travel due to the extended bounce. Even so, it will still sag and stretch, so the maximum stretch distance must be added to the fall distance, adding to the necessary clearance to be maintained. If the horizontal lifeline is not post-tensioned, the natural line sag must be added to the stretch for total vertical distance of the worker's fall arrest. For all the various systems, the anchor point in relation to the dorsal D-ring is critical.

Grab speed is another factor to consider when using a vertical lifeline. Allow 1 ft for the rope or cable grab to activate, then add in all the other components. Even with a ladder-climbing device that is limited to a lanyard of 9 in., the fall can be traumatic. The lanyard is always trailing, so the free fall before the grab starts to engage is 1.5 ft; one must then add 1 ft for grab and 1 ft for harness stretch from the front D-ring. Even without the safety factor a sudden 3.5 ft drop can be traumatic and the employee's shins likely will bang against several ladder rungs before the fall is stopped.

All fall protection systems have limitations and factors to be considered. These systems are designed to save lives and prevent serious injury if used properly. Employees must know that these systems are not designed to be a thrill ride or an activity to get an adrenaline rush. Therefore, training must address the limitations of the system being used.

Figure 3 Required Clearance



A. Free Fall - Max. 6 ft
B. Deceleration Distance - 42 in.
C. Dorsal D-Ring Height
D. Harness Stretch
E. Safety Factor
F. Total Clearance Required

10 Considerations for a Fall Rescue Plan

By Jim Hutter

Fall protection is a complicated issue and one of the most important faced by an employer or worksite supervisor. With more than 100,000 reported incidents per year, falls from heights almost always result in serious injury. In the construction industry, falls are the leading cause of worker death. Falls result in millions of dollars of losses annually in lost work, insurance premiums and liability claims.

In addition to a fall protection plan, a fall protection rescue plan is essential for any company whose personnel work at heights. A well-designed written

plan is good evidence that an employer is striving to comply with regulations and can help protect against the economic consequences of an incident including fines, liability and increased insurance costs. Most important, it reduces worker risk and saves lives.

The new ANSI Z359.2 standard requires all worksites to employ a fall rescue plan that provides prompt rescue to fallen workers. The standard requires that the program administrator name a competent rescuer, or competent or qualified person to be in charge of the rescue plan. The responsibility of the competent rescuer is that s/he must anticipate and develop the procedures and methods for a fall protection rescue plan. Local emergency services may provide the rescue services if the program administrator deems that they meet the requirements of this standard. A copy of the plan must be maintained at the site, and only a program administrator may make changes to the plan.

When creating a successful fall rescue plan, the following 10 key elements should be considered.

1) **Areas of risk.** Before drafting a fall rescue plan, managers and supervisors should implement a hazard analysis to determine key areas of risk. These areas will be specifically addressed in the plan to ensure that employees are aware of the risks and the proper procedures to rescue workers from these situations.

2) **On-site preventive measures**. The best way to avoid a fall and subsequent rescue is to prevent it from happening. Installing guardrails, warning lines or fall restraint systems can be an easy step to prevent falls.

3) **Rescue systems**. For a fall protection system to be effective, workers must understand how the rescue system works in all contingencies. Taking the time to adequately educate workers on the proper use of the various rescue systems in varying circumstances can save time and reduce additional injuries from suspension trauma.

4) **Cost effectiveness**. When creating a fall protection and rescue plan, it is generally a far more cost-effective approach to make the investment in industrial rescue systems that are simple, prepacked and preengineered versus the traditional technical rescue approach with a bag of rope, handful of carabiners and pulleys.

5) **Training**. By using preengineered systems, the training becomes much simpler, safer and quicker should a rescue be required. ANSI Z359 now requires that a competent rescuer be trained annually and demonstrate his/her proficiency.

6) **Timeliness**. Employers must pay specific attention to the time it will take to reach a fallen worker. Within OSHA 1910.151, Medical Aid, the regulation uses the word “prompt,” which is supported by a letter of interpretation that clarifies “prompt” as being able to provide medical aid within 4 minutes if there is a potential for injury or 15 minutes if the program administrator deems that no potential exists for injury to the fallen worker.

7) **Simple and safe. Within** the rescue plan, consideration should be given to the following elements: self-rescue, assisted self rescue, incorporation of suspension trauma straps and mechanically aided rescue. As a last resort, the rescue should incorporate intervention by a competent rescuer, which requires the rescuer to be placed in danger by being lowered to the worker and performing a rescue pick-off.

8) **Rescue services**. In certain situations, rescue services will be able to reach a fallen employee more safely than other site workers. If outside rescue services are to be used, they should be briefed on the fall rescue plan so that they can assist in a rescue in the best way possible.

9) **Incident reporting**. To better prevent future falls or injuries, the plan should address incident and near-hit reporting. A competent person should take responsibility for reporting these incidents in a timely, appropriate manner so that changes or corrections can be made to equipment, risk and procedures on the jobsite.

10) **Compliance**. Even a well-planned fall rescue program will fail if personnel on the job don’t use the equipment or don’t use it correctly. Motivating workers to be compliant with equipment and procedures will maintain jobsite safety and will be a tremendous asset in the event of a rescue.

Creating a fall protection and rescue plan can seem a daunting task. By taking these 10 elements into account, however, managers can develop and implement a plan, should the need for rescue arise, that allows employees to do their jobs while also ensuring everyone’s safety.

Jim Hutter is a senior training specialist with Capital Safety, Red Wing, MN. Learn more at www.capitalsafety.com.

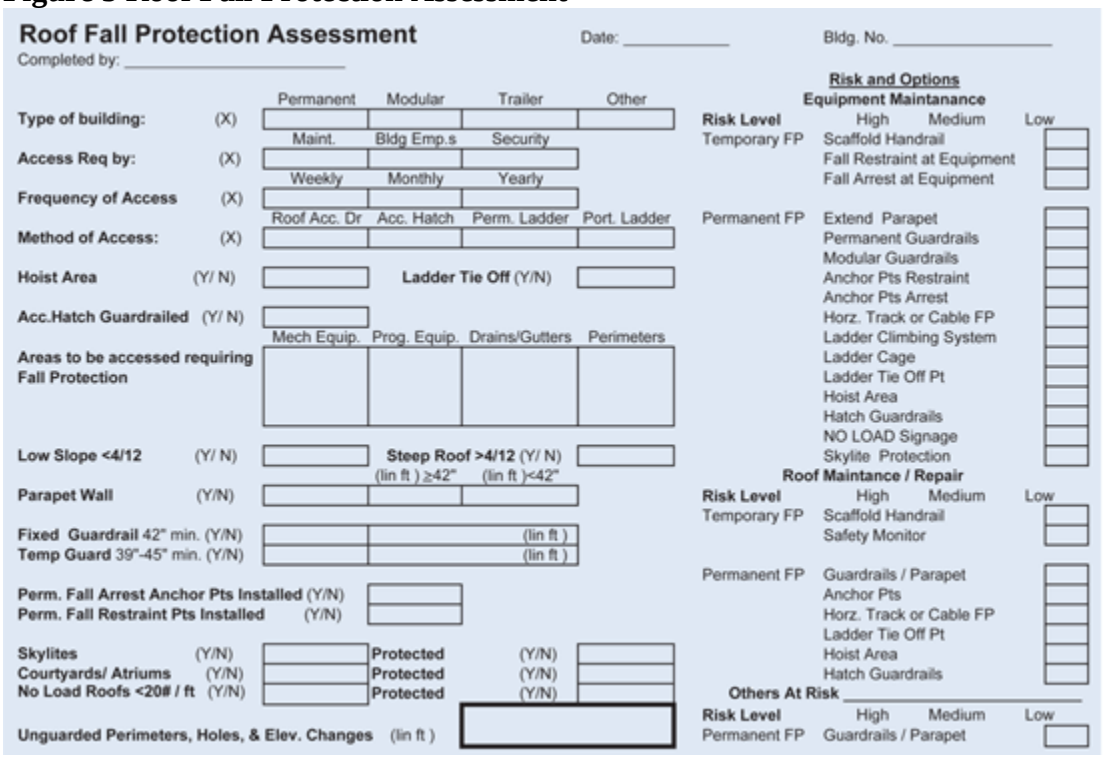
Misconception: Rescue Planning

The final misconception is that calling 9-1-1 automatically fulfills the employer’s responsibility for rescue planning. Depending on the situation, calling 9-1-1 may or may not work. Hang time, height and available equipment are the true determining factors. Rescue after a fall is only addressed in the construction standards [29 CFR

1926.502(d)(20)]. “The employer shall provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves.” Prompt is never defined, but a letter of interpretation (April 27, 2004) states, “There are, however, circumstances that, when taken into consideration with other OSHA requirements, could result in a maximum allowable suspension time.”

An example of this is where the standard requires that employees exposed to electric shock at fixed work locations (e.g., generating stations) must be able to be reached by trained persons within 4 minutes” [29 CFR 1910.269(b)(1)(ii)]. The letter also explains that the 4 minutes is after discovery. Prompt may be better defined by the adage of “walking in the other man’s shoes” when determining the allowable length of hang time.

Figure 5 Roof Fall Protection Assessment



Suspension trauma is not a myth. It occurs from being in a suspended harness after a fall (prolonged static positioning). The person may be conscious or unconscious. Suspension trauma is potentially fatal. Suspension tolerance after a fall may be as short as 14 minutes for a full-body harness, according to Hearon and Brinkley (1984).

Why is it necessary to get the person down “in a timely manner”? The body needs help to get the blood from the lower extremities back to the heart—meaning some muscle movement is necessary. So, if the employee is conscious, encourage leg movement. If the employee is not conscious, rescue time becomes a major consideration. Although rescue planning is not specified as an OSHA requirement, the intent is certainly there and a prudent supervisor should make rescue planning a part of the work planning.

Conclusion

This article has highlighted several myths and misconceptions concerning fall protection by referencing the relevant OSHA standards, proposed regulations and letters of interpretation. Many of the erroneous interpretations surfaced as early as 1973, soon after the OSH Act of 1970 went into effect. Some of these misconceptions have been very pervasive.

The first five issues addressed likely began as honest mistakes, but they are mistakes nevertheless. Logic does not always conform to the standards but the standards are the law. SH&E professionals should not perpetuate or condone erroneous interpretations of the standards. The last issue, rescue planning, is a relatively new issue for many. It should be considered in fall protection planning and procedures. A company or facility fall protection plan or policy review may be in order and is encouraged. Retrain if necessary. Employees must know their options as well as the limitations of the equipment that the employer provides.

ASSE on Fall Protection

ASSE offers several resources to help SH&E professionals meet the challenges of protecting employees against falls.

Introduction to Fall Protection
Author J. Nigel Ellis offers specifics to aid in the identification of walking and working surface hazards, including slips and trips, stairways and ramps, ladders, scaffolds and roofs. *(ASSE Order #4380)*

ANSI/ASSE Z359 Fall Arrest Code (Available Soon)

- Z359.0-2007: Definitions & Nomenclature Used for Fall Protection & Fall Arrest
- Z359.1-2007: Safety Requirements for Personal Fall Arrest Systems, Subsystems & Components
- Z359.2-2007: Minimum Requirements for a Comprehensive Managed Fall Protection Program
- Z359.3-2007: Safety Requirements for Positioning & Travel Restraint Systems
- Z359.4-2007: Safety Requirements for Assisted-Rescue & Self-Rescue Systems, Subsystems & Components
  [ASSE Order #E-Z359-PKG (electronic); #Z359-PKG (hard copy)]

ANSI/ASSE A10.8-2001
Safety Requirements for Scaffolding: American National Standard for Construction & Demolition Operations *(ASSE Order #3808D)*

ANSI A1264.1-2007
Safety Requirements for Workplace Walking/Working Surfaces & Their

Access; Workplace Floor, Wall & Roof Openings; Stairs & Guardrail Systems *(ASSE Order #A1264-1-2007-ECD)*

ANSI/ASSE A10.18-1996
Safety Requirements for Temporary Floor Holes, Wall Openings, Stairways, & Other Unprotected Edges: American National Standard for Construction & Demolition Operations *(ASSE Order #3818D)*

ANSI/ASSE A10.32-2004
Fall Protection Systems for Construction & Demolitions Operations *(ASSE Order #3832D)*

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