

Is There A “Standard” for Rooftop Fall Protection?

By Jim Justus and T.R. Hernacki

Fall protection or fall prevention is a messy area, with multiple agencies, authorities, governing codes, and intersecting requirements. OSHA, Cal-OSHA, ANSI, IWCA, IBC, and other groups and agencies have conflicting or incomplete information, and OSHA inspectors, IBC Building Inspectors, Authorities having Jurisdiction (Fire Marshalls, Building Officials) and others often have incomplete, inadequate, or a mis-understanding of the basic premises and purposes for fall protection or fall prevention systems and devices. In addition, the US Court system has legal precedents for fall protection/prevention based upon litigation cases that may exceed or expand beyond the regulatory agencies regulations. This article is an attempt to help commercial building owners and managers think about a “standard of care” for their building.

Since 1973, when OSHA CFR's 1910 and 1926 were published and began to influence the workplace, confusion about the interpretation of the standards have been a problem, and fall protection issues are certainly in the middle of the issues. In addition to the referenced CFR's, OSHA has issued over 350 Standard Interpretations to formally submitted questions. However, sometimes the interpretations cause more problems than the original standards.

Starting with the basics, OSHA CFR 1910 covers general industry operations and maintenance (General Industry). OSHA CFR 1926 covers construction, alteration, modification, and demolition (Construction). Unless a specific interpretation letter was issued that allows the use of CFR 1926 for maintenance activities, only those items

in CFR1910 regulate maintenance activities on a commercial building. Typically these would be expected to include changing filters, hoses, belts, clearing drains, painting, cleaning, etc. However, even the definition of maintenance or construction is murky. Is the replacement of a roof top package unit maintenance or construction? Is the major upgrade of a fan unit on the

roof maintenance or construction? Unfortunately, the OSHA regulations are silent on these types of definitions.

The typical regulations cited for general building maintenance activities associated with falls or building façade access are 1910.23 (Guarding floor and wall openings and holes), 1910.28 (Safety

requirements for scaffolding), 1910.30 (Other working surfaces), and 1910.66 (Powered Platforms for building maintenance). Other provisions that cover fixed and permanent ladders, mobile stands, and other accessories also come into play. If you notice, none of these provisions addresses roof top or elevated activities in any specific detail.

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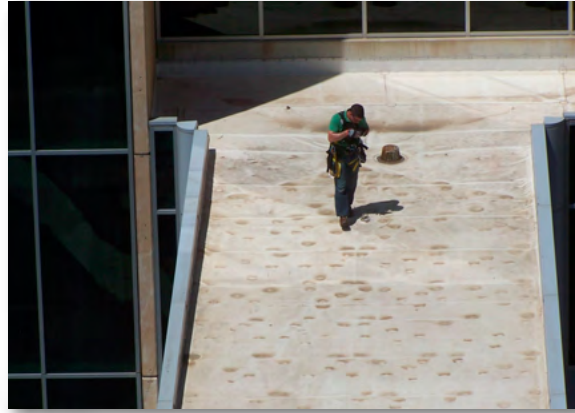
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For construction activities, CFR1926 covers the required safety requirements, and the preamble to the CFR1926 Standard specifically states the premise that “OSHA has determined that there is no safe distance from an unprotected side or edge that would render fall protection unnecessary”. Based on the preamble, everyone, everywhere, at every location working at elevation (per CFR 1926 currently 6-feet or higher above the surface below – which is greater than the 4-foot requirement in CFR 1910) would require fall protection. However, in 1996, a Standard Interpretation letter written in response to Dr. Ellis concluded “However, when employees working 50-100 feet away from the unprotected edge have been properly trained, then the situation can be considered a “de minimus” condition.” “De minimus” indicates that essentially OSHA will not cite you for that violation. So the general regulation went from infinity to 50-100 feet.

However, CFR1926, Subpart M, section 500 specifically covers fall protection. CFR 1926.501(b) (1) notes that fall protection is required when walking/working with an unprotected side or edge which is 6-feet or more above a lower level shall be protected from falling. CFR 1926.502(f) describes “warning line systems”, while CFR1926.502(g) describes “controlled access zones”. In both cases, a line may be erected at a specified length from the “roof or leading edge” of construction as a warning to restrict access. Typically for the various types of activities defined (except bricklaying), the distance from the roof or leading edge to the warning line is a minimum of 6-feet. The warning line has various other requirements for height, strength, visibility, etc. Concurrent with CFR 1910, several standard interpretation letters also define a “Designated Area”, generally referred to as the designated work space. Typically, these are defined as 15-feet from the edge. Therefore, while one Standard Interpretation letter indicates a de minimus dimension of 50-100 feet, other Interpretation letters define various other requirements (6-feet, 15-feet) that are less than that. Various Standard Interpretation letters tie some of these requirements to both 1910 and 1926 requirements.



In addition to these confusing regulations, OSHA also has specific sections for fall restraint devices (CFR1910 Subsections D and I). These essentially allow an employee to violate edge distances provided they are tethered to an appropriate restraint device that will not allow them to fall over the edge. Finally, OSHA has the right to issue citations based upon the “General Duty Clause”, which essentially means that OSHA can cite and fine you after an accident regardless of whether they have a specific clause that applies, based upon the premise that you as their employer have an obligation to provide a safe work environment. That citation and fine can be used in litigation to imply negligence and intentional disregard for safety.

The International Building Code (IBC) also has requirements for various distances for the placement of equipment on roof tops, ostensibly for the protection of the workers. Depending upon the IBC Code utilized (Building, Mechanical, Electrical, Renovation, etc.), and the publication date of the code, the distances range from 10-feet to 15-feet away from roof edges for the placement of equipment, with a generally consistent 6-foot distance from the edge for traversing the roof top without additional safety measures. Enforcement of IBC provisions is the responsibility of the Authority having Jurisdiction (AHJ),

and also depends upon the adoption of that specific code in that jurisdiction.

The American National Standards Institute (ANSI), in association with the International Window Cleaners Association (IWCA) published ANSI document I-14.1 in 2001, which attempted to clarify the requirements for window washing and general building façade related activities. As a published national consensus standard, written as a collaborative document by the industry with consultants, contractors, and owners, and written specifically for access to building facades, it is significant in defining a “standard of care”. Section 3.8 of that standard specifically notes that fall protection is required when approaching within 6-feet of an unprotected edge, but is silent about protection outside that distance. It also has various restrictions on the anchorages for worker safety lines, heights above pavements, and other issues specific to façade maintenance activities. However, the ANSI document has

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been withdrawn by ANSI as a national standard due to internal procedural problems associated with updating the standard in 2011. While it is expected that the I-14 committee will correct those issues, at the moment, I-14.1 does not officially exist as an ANSI standard, but strictly as an IWCA document.

Finally, there are a number of litigation cases that resulted in awards or settlements that were allowed to be open and used as precedents for future cases. As precedents, any decision or legal disposition could be used for future litigation, which typically occurs when a fall occurs.

So what is a building owner/manager to do? What criteria should they set to provide a safe workplace for their employees, contractors, and third party maintenance workers? If a fall occurs, in our experience a lawsuit will almost always result, pitting the injured or deceased worker (or family) against anyone and everyone who may possibly be involved. The plaintiff's lawyer will typically cite any or all of these requirements as creating a "standard of care" in the industry that a building owner or operator should have been aware of and in compliance with. The fact that some of these "standards" aren't standards at all, and that conflicts and mis-interpretations exist between them, may have little or nothing to do in the ultimate settlement of the case. Therefore, a prudent building owner or manager must understand that simply complying with OSHA may not be sufficient, they must show compliance with a "reasonable" set of guidelines based upon an interpretation of any or all of the cited documents noted above if they have any expectation of prevailing in litigation.

So, what are FEA's recommendations regarding fall protection/fall prevention? In simple terms, we recommend the following (noting that within each item, specific additional measures apply):

1. Do not allow any worker (employee, contractor, subcontractor, outside maintenance for third party equipment) to traverse (walk) within 6-feet of any unprotected edge with greater than a 4-foot fall (fall height per OSHA CFR 1910). An unprotected edge is one that doesn't have a rail, wall, or other appropriate fall restraining or fall prevention device. While not a specific OSHA requirement, it does appear in other pertinent documents (ANSI, IBC), and in our opinion is a reasonable approach. Protect the edge, or don't allow access.
2. Do not allow any worker to work on any piece of equipment, device, drain, attachment, etc. within 15-feet of the unprotected edge unless they have fall protection or fall restraint devices in place. Again, while not a specific OSHA requirement, similar requirements appear in other pertinent documents, and in our opinion represents a reasonable approach. This includes rigging bosun chairs or swing stages, as that can be classified as work. Protect the edge, move the equipment, or stop performing work on the equipment.

3. If the building requires accessing the building façade for window washing or other maintenance activities via a single man descent device (boatswain chairs or bosun chairs), we recommend the following:

- The primary line (boatswain (bosun) chair) shall be anchored to a permanently mounted roof top anchorage rated for the appropriate load, either a 5,000 lb. ultimate load in the direction of use, or a rated load based upon the actual load with a safety factor, typically 4:1 for the safety factor. The anchorage must be load tested and certified at least once every 10-years, after roofing exposure, or after a fall. It must be inspected yearly, and daily upon use. Documentation of all load tests, certifications, and inspections shall be kept.
- The secondary line (or personal line) to the workers harness shall be anchored to an independent permanently mounted roof top anchorage rated for a 5,000 lb. load in the direction of use. The anchorage must be load tested and certified at least once every 10-years, after roofing exposure, or after a fall. It must be inspected yearly, and daily upon use. Note the key requirement that the anchorages must be independent.
- The ANSI/IWCA standards for reach, swing, etc. shall be fully complied with when washing windows or performing any façade restoration work.
- If a rope descent system (bosun chair) with an automatic brake suspension system is utilized, the height shall be limited to 300-feet above grade (except where local regulations differ such as California) (I-14.1-2000, Section 5.7.12).

While not a complete summary of the various published guidelines, regulations, building code requirements, litigation case precedents, or other documented industry recommendations, following the 3 simple steps above will help minimize the potential for worker injury, and provide a good start for a defense if an injured worker attempts to litigate for further damages. FEA is available for consultation if you think you have a potential fall hazard on your building, or if you access the building façade for window cleaning or maintenance activities, and are unsure if you fully comply with the regulations. We have performed these services nationwide, and are ready to help you solve your unique fall hazard problem.

Facility Facts Summer 2013 Announcements

Sara Guerrero successfully passed the NCEES exam for her PE license

Jim Whittaker was promoted to First Vice Chair, IFMA Executive Committee

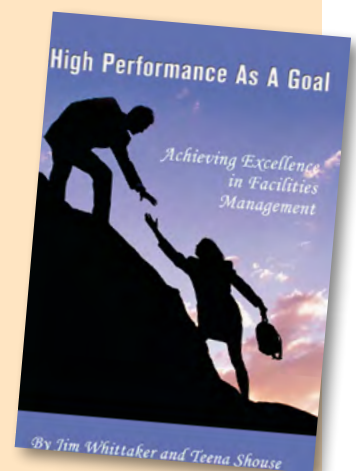
Amanda McKnight was hired as a Staff Engineer for the Denver office

Stephanie Hill was hired as an Administrative Assistant for the Fairfax office

Check out FEA's
latest book by
Jim Whittaker
and **Teena Shouse**

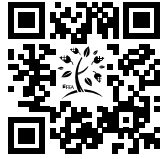
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Facility Facts

Facility Engineering Associates Informational Newsletter



FEA on the Road

FEA is excited to have visited several new countries!
Thanks to Kathy Powers and Megan Marvil for their recent work in

Cameroon • Democratic Republic of Congo • Congo (Brazzaville)

6/27-6/28 - McHenry, MD

MD/DC APPA Educational Program at WISP Resort

Jim Whittaker is presenting "Using Technology to Better Manage Your Workforce and Facilities"

8/25-8/28 - Chicago, IL

APWA (American Public Works Association) Public Works Congress and Expo

Teena Shouse and Terry Cocherl attending. Booth # 1925

9/16 - Lansdowne, VA

Associa Cares Annual Vendor Fair

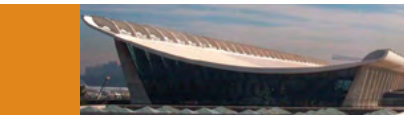
Tom Larson and Mark Leeman attending

Save the Date

9/17-9/18 - Las Vegas, NV

NFM&T

Teena Shouse presenting "High Performance as a Goal"



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