Planning for Compliance with the OSHA's Occupational Safety and Health Standards Part 1910, Subpart D, Walking-Working Surfaces

By Mike Dahlquist

ONE UNIQUE ASPECT of a building enclosure consultant's work is that it must be performed in so many different locations and circumstances in the field. When it comes to making site visits to document existing conditions or inspect work, a building enclosure consultant in the waterproofing world may be one of few individuals who could find themselves inside a confined space below grade on one day and then riding a suspended scaffold to evaluate a facade 30 stories up the side of a building the next day. For some, this is just another hazard of the job that must be dealt with; for others, the variation can be part of the excitement that gets them out of bed every morning. But in all cases, fall hazards and safely working at height add complexity to projects. While mainly focused on the waterproofing work product while at the site, it is still critical to plan for and work safely at all elevations.

I was reminded of this early in my career when New York City revised a 1980s facade inspection law to require "close-up" drop inspection of building elements as part of a complete report.[1] This increased the need for design professionals to ride suspended scaffolds to touch facades up above the city streets, as opposed to using binoculars, telephoto photography, etc. Soon after the facade inspection ordinances were in place, it became clear that some basic training requirements were in order for all of the additional inspectors who would now be hanging from the side of tall buildings to inspect and then later perform restoration and facade repair functions. As a safety trainer focusing on facade access for tall buildings at the time, I was approached by several of my design professional friends who now needed training regarding safely riding a suspended scaffold on the side of a building to perform their work. Soon thereafter, I developed a course specifically for them because they were not always working at heights on a daily basis. Their training needs were different from those of the technicians, applicators, and tradespeople who operate scaffolds daily to perform their work. Simply trusting what had been set up on site by others was, and still is, not always a safe option. Understanding how to personally use and inspect rigging and fall protection systems before boarding a rig is critical.

Flash forward to 2017, when the Occupational Safety and Health Administration (OSHA) published *Occupational Safety and Health Standards* Part 1910, Subpart D, "Walking-Working Surfaces," which covers personal fall protection systems and took effect nationally.[2] This was the culmination of a rule-making process that OSHA began in the summer of 1990 (see sidebar, "Understanding Nomenclature Related to Federal Regulations"). After 27½ years in the rule-making process, it substantially changed the requirements for rooftop anchorages that are attached to when suspending workers over the side of a building, as well as the fall protection measures required to be in place both over the side and on a rooftop, and it also defined a building owner's

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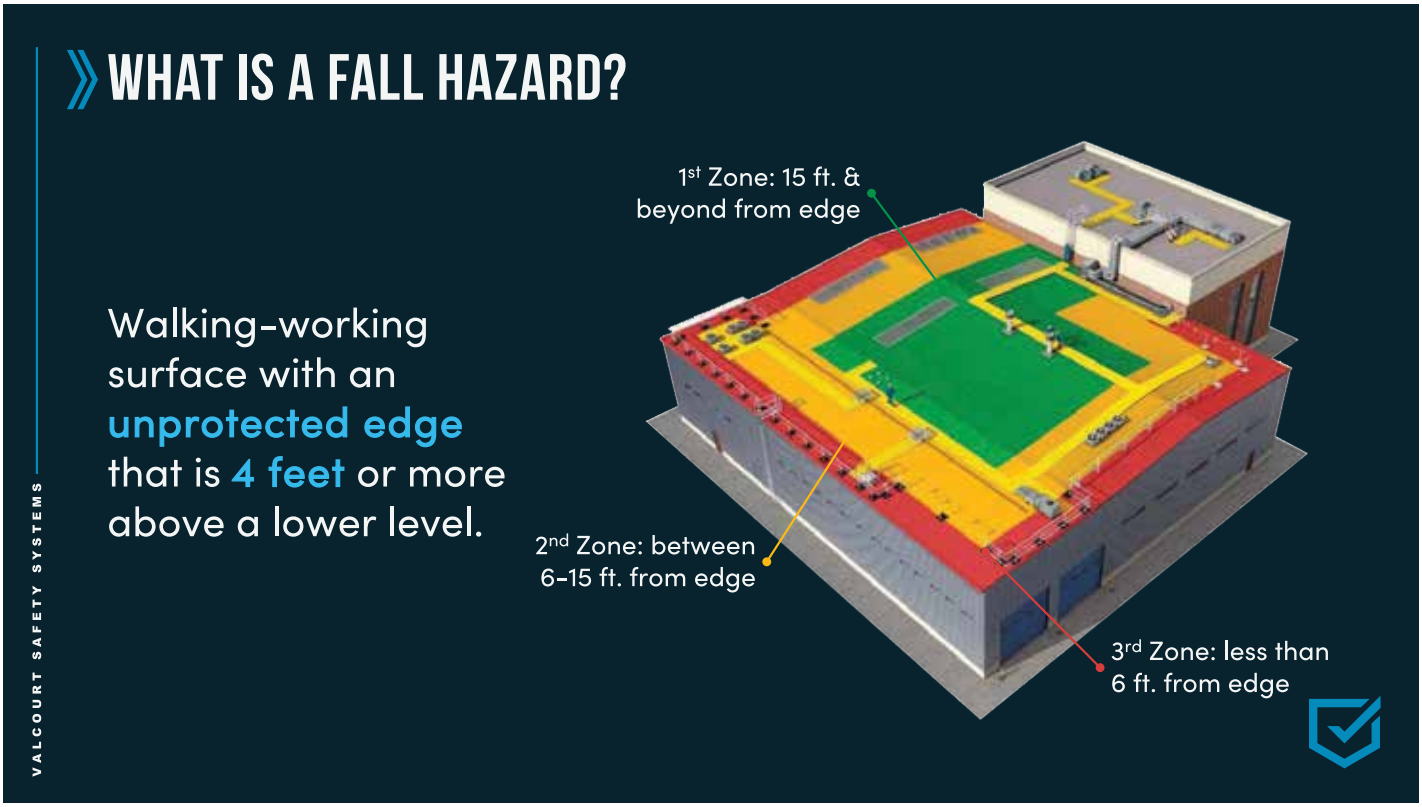

Figure 1. *A helpful graphic created by the team at fall protection manufacturer KattSafe.*

responsibilities in addition to any contractors on the building. By OSHA's own description, falls from heights and on the same level (a working surface) are among the leading causes of serious work-related injuries and deaths. In its fact sheet,[3] OSHA estimates that in an average year leading up to the release of this rule, "approximately 202,066 serious (lost-workday) injuries and 345 fatalities occurred annually among workers directly affected by the final standard." It also says that "OSHA's final rule on Walking-Working Surfaces and Personal Fall Protection Systems better protects workers in general industry from these hazards by updating and clarifying standards and adding training and inspection requirements. The rule affects a wide range of workers, from window washers to chimney sweeps."[3]

After decades of ambiguity and gaps in definition, the new rule language makes it clear that the OSHA standard requires fall protection on a building everywhere, from the loading dock, pits, wells, and vaults below grade, right up to rooftop access fixed ladders on the machine room or penthouse. In addition to the more obvious roof edge hazards (for example, low or no parapets), anyone who steps out onto a rooftop must be protected from falling more than 4 ft (1.2 m) to a lower level, including down through access hatches and skylights. The new rules define a compliant ladder and provide rules for safe walkways. Now that the portable- and fixed-ladder rules are clarified and specific dimensions have been added (note OSHA standard 1910.23 in particular), many existing fixed-ladder installations do not meet the new standard, and as of November 2017, most of these are not "grandfathered" in.

In particular, OSHA standard 1910.27[2] and OSHA standard 1910.28[2] address how fall protection and scaffold or rope access are to be used when suspended on the building, but they also apply at any time a worker is stepping onto a rooftop. OSHA standard 1910.30[2] designates specific training of all employees (contractors or building employees) who would be exposed to fall hazards by stepping out onto a rooftop or balcony. Considering that there is a currently active *National Emphasis Program on Falls* that OSHA has launched regarding fall protection,[4] there is an imminent need for awareness and training to protect design professionals who make site visits to buildings.

At minimum, any consultant, specifier, or other design professional needs to be conversant in two important areas with regard to fall protection:

1. Protecting themselves from falls and following the applicable rules while working at any elevation from which a worker could fall 4 ft (1.2 m) to a lower surface on a building. From the point of entering onto a rooftop until returning safely to the ground or back inside the building, the OSHA Part 1910 Subpart D2 dictates safe access not only over the side of the building, but on all areas of the rooftop that a worker can occupy.
2. Understanding how the 2017 version of OSHA Part 1910 Subpart D2 have impacted a building owner's responsibility to provide certain basic elements for fall protection safety on the building. In most cases now, the building owner's responsibility to provide safe ladders, walkways, and fall protection is non-delegable. That is a key change in the wording of the regulation and exposes the building owner to fines and citations for non-compliant access, even if the primary focus of the OSHA inspection is to look at the way a contractor is performing work. In order to give good advice and plan properly, it is important to understand those key areas where the building owner has a responsibility to provide and assure safety compliance.

Let's look at these two points in more detail.

1. **Protecting yourself and all employees on a rooftop:** All members of a design consulting team who will be on rooftops need to be trained to recognize and manage fall hazards.

There is an exception for initially assessing existing conditions and planning access. For example, the OSHA Part 1910 Subpart D2 excludes full compliance at some times on an initial site visit where you might have to kneel down to approach the edge behind a low parapet in order to observe and record existing conditions. However, that exception does not continue to apply after the work has been planned and fall protection systems are in place. All individuals, including trade workers, management, consultants, and the building's facilities staff, need to be equipped with the right knowledge by way of a fall protection plan and the needed personal protective equipment to use the designated fall protection methods prescribed at all times on the rooftop. A good aid in visualizing what rooftop compliance looks like is this graphic created by the team at fall protection manufacturer KattSafe (**Fig. 1**). In my mind, it helps me to divide the roof into three zones:

a. **Red zone (ref. OSHA 1910.28[b][13][i])2:** Within 6 ft (2 m) of any roof edge, or within 6 ft (2 m) of any other unprotected opening on a roof such as a skylight, mechanical well, or lower setback. For a rule of thumb, I think back to the past when team-building activities at a corporate retreat included the classic "trust fall" exercise. If I am standing in any spot on a roof where I could "trust fall" and someone were to fail to catch me, would I still be fully lying on the roof? If part of my body would go over the edge or into an unprotected opening, then I am in the red zone and need to be protected by compliant guardrails, covers, or an active fall restraint or arrest system. An unprotected individual in the red zone is in serious danger. OSHA's "Fatality Inspection Data," a series of incident reports available online,5 the results sadly testify to how many times workers have become distracted and tripped to their death from the red zone, tragically experiencing what was essentially a failed "trust fall."
b. **Yellow zone (ref. OSHA 1910.28[b][13][ii])2:** Between 6 ft (2 m) and 15 ft (5 m) from a roof edge or unprotected opening (for example, a skylight or a mechanical well) is an area OSHA has identified as an area of increased danger that must be addressed specifically in a fall protection plan. This area requires more fall protection methods than commonly used in the past. This may include guardrails, safety nets, and travel restraint or personal fall arrest systems. Also, other positive means of keeping trained workers safe in the yellow-zone risk area, such as warning lines, may be required in the site-specific plan.
c. **Green zone (ref. OSHA 1910.28[b][13][iii])2:** The area 15 ft (5 m) or more from a roof edge or unprotected opening is the safest area of a rooftop, and in an ideal design circumstance, this is where all mechanical equipment, walkways, etc., would be located. Of course, the same requirements for skylights and opening guarding from the red and yellow zones still apply. In addition, roof access hatches in this area still need guardrails with a self-closing gate. Of note, it is no longer permitted to climb out over the curb of an unprotected hatch or use safety chains at railing openings. If none of these additional hazards occur in a building's green zone, after a complete fall hazard evaluation, marking and signage, along with proper training to communicate the rooftop safety plan, may prove to be sufficient to protect workers.

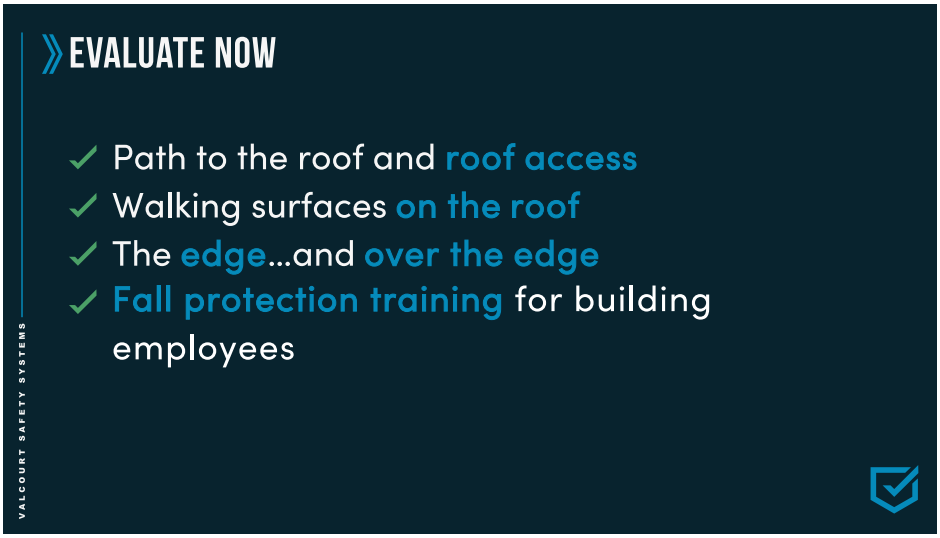

Figure 2. *There are at least four areas within the new OSHA Standards 1910.21through 1910.30[2] where the building owner has a responsibility for providing, certifying, or training about fall protection.*

The design professional needs to be conversant with the fall protection plan for the building. If there is no plan, one should be developed so all members of the team know exactly the parts of the roof or facade that may be safely accessed. Subjects addressed in the plan include (1) training on the use of fall protection equipment and (2) systems that are needed to safely access the structure.

2. **Correctly advising clients about their responsibility to provide for fall protection:** Designers often find that many of their customers (building owners who engage a consultant for an evaluation or project specification) still believe that fall protection is solely the responsibility of the contractors who are hired to work on the building. In order to protect owners from liability, it is critical to help them understand that there are at least four areas within the new OSHA standards 1910.21 through –1910.30 where the building owner has a responsibility for providing, certifying, or training about fall protection (**Fig. 2**). This is particularly critical now: as previously mentioned, OSHA has implemented a *National Emphasis Program on Falls*,4 where they are inspecting buildings unannounced and will cite the following conditions:
   a. To avoid unwittingly exposing multiple trade workers to hazards on a rooftop, the building's fall protection plan often needs to be updated and implemented to meet the OSHA Part 1910 Subpart D.2
      i. Implementation of the updated plan may require the building to purchase and install new railings, ladders, guarding, and other permanent fall protection systems that have not been in place to date.
      ii. Often, the owner's representatives need this responsibility communicated to them and reiterated because, prior to 2017, it was typically assumed to rest

Figure 3. *Unprotected non-compliant roof hatch (left photo) versus a OSHA Standard 1910.28[2]-compliant hatch with rails (right photo).*

solely on contractors who employed workers on their building.

b. It may be that the most cost-effective time to add and certify roof anchors, provide compliant ladders, or add guarding and guardrails would be in conjunction with a major roofing or facade restoration project. But for that to happen, any non-compliant safety deficiencies observed must be communicated clearly to the building owner in the planning phase. Some examples include:
   i. Fixed or portable ladders for roof access, or fixed ladders on the roof that provide access to upper roofs or roof levels.
   ii. Roof hatches where individuals climb up from the building interior and out onto a roof surface (**Fig. 3**).
   iii. Roof anchorages for fall protection safety lines and suspension tiebacks that have been certified by a qualified person.
   iv. Any access, including doorways, where the individual coming out the door is placed within the red or yellow zone.
   v. Unguarded skylights.
   vi. Unguarded openings or changes in elevation.
   vii. Trip hazards such as conduit, ducts, piping, or knee walls that do not have a ramp or crossover stairs.
   viii. Elevated platforms for servicing mechanical equipment.
c. The requirement for fall protection training for all employees is the other aspect that is often overlooked. This means that not only employees of contractors who work on the building, but any facilities management personnel or other employees of the building owner who could step out onto a roof surface must have documented training that they understand the fall protection plan and how to use related fall protection equipment. This training could be quite involved if personal fall restraint and arrest systems are utilized. Conversely, it could be quite simple if the plan is not to allow anyone access to the rooftop. But in any case, it needs to be specific to the building and the particular hazards that have been identified and are being controlled.

It also needs to be recognized that temporary construction fall protection measures used during a restoration project are not the same as what is required for day-to-day use of the building after construction is complete. That is the difference between the OSHA construction standard (OSHA Part 1926[6]) and the OSHA general industry standard (OSHA 1910[2]). Temporary and transportable equipment like ladders may be used during construction, whereas a more permanent fixed solution will be required for general industry use later. To accomplish needed improvements to the building fall protection for general use, there needs to be an evaluation and prioritization done early enough to design, procure, and install permanent equipment solutions as part of the project. Frequent review of the scope and re-explanation are needed along the way to clear up confusion between the construction and the general industry standards and where they apply. A balance between overspending on nice-to-haves and clearly addressing liability issues is critical, and a trusted advisor for the building is invaluable unless the building owner has a clear plan already developed by ownership or management. As many ownership groups diffuse these decisions out to a more local, building-specific level, education is consistently needed.

In summary, while fall protection may not be a building enclosure consultant's core expertise,

it should never be overlooked on a project, no matter how tall or short the structure may be. It may be prudent to engage a fall protection specialist if the fall protection plan is not simple and clear cut. But in any case, a fall protection plan must be in place any time personnel venture out onto a rooftop or into any other area where there is a potential to fall 4 ft (1.2 m) or more to a lower level. And finally, one should not assume that the building ownership and its representatives understand their responsibility to provide fall protection. In fact, it's quite possible they will not know this is a requirement at all. Therefore, it should be a point of discussion right from the beginning of the planning for any building project where falls could be a hazard.

When it comes to fall protection, remember that there will be hazards to eliminate or control on almost every project you are associated with. Protecting yourself and your team, along with providing good advice to your client on a subject that is often overlooked until there is an accident, is the payoff from including fall protection as part of the initial planning on any project you are associated with.

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UNDERSTANDING NOMENCLATURE RELATED TO FEDERAL REGULATIONS

By Emily Lorenz, PE

Departments and agencies within the US federal government annually publish rules within the Code of Federal Regulations (CFR). There are 50 titles, and *Title 29: Labor* are subdivided into several chapters that contain Parts/Sections 0 through 4999. Chapter XVII contains Parts/Sections 1900 through 1999, which are the rules and regulations established by the Occupational Safety and Health Administration (OSHA) within the Department of Labor. Each Part/Section is further divided into Subparts, with Part 1910, Occupational Safety and Health Standards, being subdivided into Subparts A through Z, with Subparts C, V, W, X, and Y being reserved.

This article focuses on Title 29, Labor; Subtitle B, Regulations Relating to Labor; Chapter XVII, Occupational Safety and Health Administration, Department of Labor; Part 1910, Occupational Safety and Health Standards; Subpart D, Walking-Working Surfaces, which includes standards 1910.21 through 1910.30.

Source: www.ecfr.gov/current/title-29/subtitle-B/chapter-XVII/part-1910/subpart-D

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