FAQ

UNDERSTANDING ROOFTOP FALL PROTECTION

The most recent data from the Bureau of Labor Statistics show that 887 workers died from falls from roofs in 2017—the highest number since the agency started tracking job-related fatalities nearly three decades ago. Those incidents accounted for more than 17% of all job-related fatalities that year, also a record. If two passenger jets fell from the sky every year, resulting in hundreds of casualties and fatalities, the public would demand change in the safety practices in the aviation industry. And yet the alarming frequency of rooftop falls and fatalities often seems to go unnoticed.

To bring a sense of urgency to this issue, we've prepared the following collection of commonly asked questions and answers that get to the heart of why it's so essential that the industry gets better at protecting rooftop workers. We'll also look at the codes that are already in place which aim to eliminate hazards, and how to reduce risk on the rooftop by assessment and installation of safety systems.

What is the hierarchy of rooftop fall protection?

The Hierarchy of Fall Protection is considered the gold-standard of safety procedures, and a truly comprehensive rooftop safety solution should follow these procedures.

A safety expert starts by inspecting a roof site for potential fall hazards. From there will evolve a complete system solution and recommendations that descend the four levels of the hierarchy—from simple, sensible approaches for eliminating risks all the way down to lifesaving personal protection systems. Let's look at each of the levels one by one:

Eliminate the Hazard. In other words, construct buildings that don't have dangerous rooftops. Ensure safe route of entry onto roofs. Admittedly, this value engineering approach is more practical during a building's design phase, not for retrofitting.

Collective Fall Protection. Examples include installing guardrail barriers around rooftop perimeter edges. This solution "collectively" protects everyone. Rooftop perimeter guardrail is the most common example of collective fall protection.

Work Restraints. Work restraints prevent a fall from occurring by using personal fall arrest equipment so that the user cannot reach the roof edge. Examples include fall protection harnesses which connect workers' bodies to anchors allowing them to safely traverse the roof to accomplish tasks. The risk? Trusting that the user is properly trained, and the harness is worn properly.

Fall Arrest System. The worker is tethered to the building by a tie-off and harness. A fall is possible, but the fall is "arrested" or interrupted within an acceptable force and fall distance.

Products such as safety railings, walkway systems, safety lines, platforms, skylight fall screens, anchor systems and warning lines help prevent workers from getting too close to dangerous areas on roofs or allow workers to move over and across dangerous rooftop areas. When the right solutions are provided, these risks can be virtually eliminated.

What is OSHA's role in regulating fall protection?

With the Occupational Safety and Health Act of 1970, Congress created the Occupational Safety and Health Administration (OSHA) to assure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance. This law requires companies to enact policies and procedures aimed at protecting their workers. So for the past nearly 50 years, the agency has been working with industry to better protect the workplace and workers.

More to the point, OSHA codes regarding rooftop safety pertain to general industry codes of compliance. This means that every roof in the U.S., where people are required to work, must have specific protections installed to keep those workers safe from injury if they should trip or fall. Some of the specifics include:

OSHA Code 1910.28(b)(1)(i)
The employer must ensure that each employee on a walking-working surface with an unprotected side or edge that is 4 feet (1.2 m) or more above a lower level is protected from falling by one or more of the following:

OSHA Code 1910.28(b)(1)(i)(A)
Guardrail systems;

OSHA Code 1910.28(b)(1)(i)(B)
Safety net systems; or

OSHA Code 1910.28(b)(1)(i)(C)
Personal fall protection systems, such as personal fall arrest, travel restraint, or positioning systems.

What are the current OSHA standards for fall protection?

Over the past half-century, OSHA standards have been updated to reflect industry fall protection requirements. OSHA now considers "distance from the roof edge" as a factor in determining the specific fall protection solutions that are acceptable. However, certain criteria must be met.

For instance, when work is performed less than 6 feet from the roof edge, employees must be protected from falling by a guardrail system, a travel restraint system, or personal fall arrest system.

Working 6' to 15' from the roof edge, employees must be protected with the same systems mentioned above. However, a designated area may be implemented when rooftop work is both infrequent and temporary.

Working 15' or more from the roof edge the same criteria as above apply; however, implementation and enforcement of a work rule prohibiting access within 15' of the roof edge without using fall protection is acceptable if the work is both "temporary and infrequent."

What does the phrase "temporary and infrequent" actually mean?

Infrequent means that the work is performed occasionally. Infrequent work is usually performed once a year, once a month, or as needed. Daily, regular, or routine tasks are not infrequent.

Temporary means that the work is brief or short. Temporary tasks usually take less than two hours to complete and are not complicated.

What are the biggest risk areas on a rooftop?

Only a fall protection expert should perform a critical analysis on your rooftops to strategically identify the hazards where people are exposed to the greatest risk. This ensures that the most dangerous areas are protected immediately with state-of-the-art systems and OSHA-compliant solutions.

The key is to identify the "Big Four" risk areas on every rooftop, as well as the best protection solutions as your goal is a rooftop that is safe and OSHA compliant. Using an integrated solution to protect workers on the roof will provide a complete and compliant rooftop fall protection system. The "Big Four" areas you need to address are:

Access Points. Ladder kits, self-closing gates, and railing systems designed for secure ingress/egress through a dedicated roof hatch will protect people when climbing onto and off of a rooftop. All ladders and hatches should be secured with a self-closing gate and safety-compliant railing.

Holes in the Roof. Openings are often overlooked, but are extremely critical to protect. A worker traversing the middle of the roof has a false sense of security when working far from the roof edge. Statistically, in the U.S., more people fall through skylights than over the edge of the roof.* Preventing falls through skylights and roof openings is as simple as installing guardrails around the skylight perimeter or attaching protective screen coverings over the glazing. Skylight screens and skylight perimeter guardrail will reduce the risk of workers falling into these dangerous holes in the rooftop.

Unprotected Edges. When access to the entire roof is authorized, the safest, most comprehensive solution is a perimeter railing system that surrounds and protects all roof edges. There are several different guardrail options for protecting the perimeter of the rooftop. Each solution depends on the type of roof (metal, standing seam, membrane, etc.), the slope of the roof, and the pathway that workers will take when working on the rooftop.

The best guardrail solution is one that is non-penetrating. This means that the integrity of the roof will not be compromised, eliminating leaks or membrane disruption. Self-standing, weighted guardrail is the preferred solution for roof perimeter safety, so workers are collectively protected, and risk is eliminated.

Rooftop Obstructions. Understanding the path your workers take across the roof is necessary for a complete fall protection assessment. Obstacles on the roof force workers to unsafely climb over or step around the obstruction, often placing workers at risk by walking too close to the roof edge.

Solutions include safe access platforms (SAPs), rooftop crossovers or step-overs, which safely transit workers over piping, ventilation systems, partitions between buildings or level changes. SAPs can be custom designed to provide safe access over those hazards.

On a standing seam metal roof or metal profile roof, a level walkway system provides a safe, anti-slip surface to avoid tripping over the seams, crowns and valleys. Dedicated walkways, either as treaded paths or with integrated guardrail, provide sturdy handrail support securely attached to non-slip treads for dependable foot traction and balance where roof surfaces are uneven or slippery.

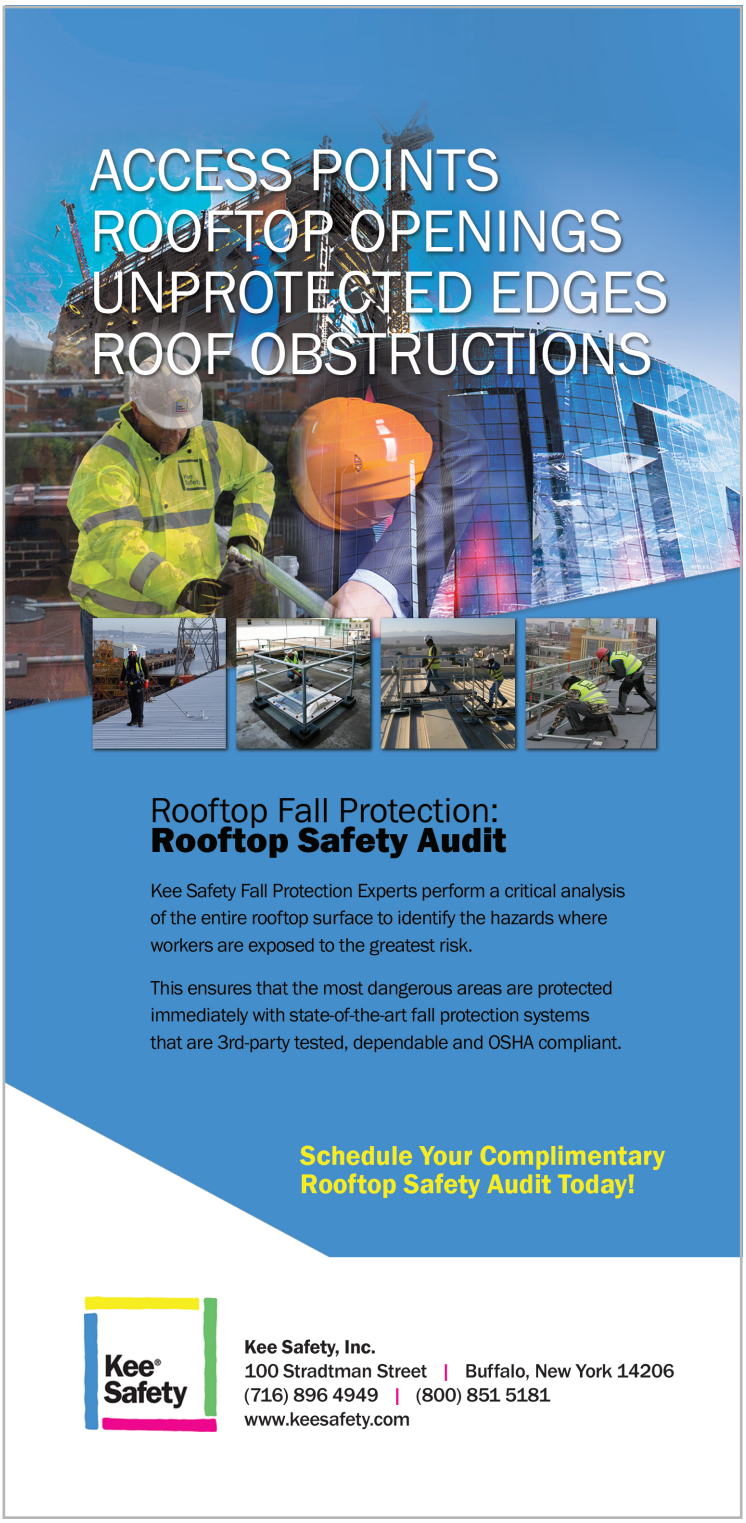
What are the hidden dangers on roofs?

When traversing a roof, the most critical hazards aren't always the most obvious. Most people believe that the edge of the roof is the most dangerous area. However, there are additional dangers lurking up on the rooftop, such as:

Skylight. As noted above, skylights present a danger for any individual on a rooftop. OSHA considers skylights to be the equivalent of a hole in the roof. Every skylight opening and roof hole must be guarded by a standard skylight screen or a fixed standard railing on all exposed sides.

Far away from the obvious hazards of access points and edges, workers are lulled into a false sense of security and are often focused on the task at hand – a perfect recipe for an accident. Furthermore, flat panel skylights on metal roofs are extremely difficult to recognize, but when these hazards are protected with compliant, weight-bearing skylight screens, the risk is eliminated.

Elevation Changes. Walking across a large white PVC roof in full sunlight can have the same effect on a worker as snow blindness. In this environment elevation changes between roof levels are difficult to see and must be appropriately marked. Using a free-standing, weighted demarcation system alerts workers to the dangers associated with a trip or fall at elevation changes. Additionally, a step-over or crossover platform that transports workers up and over the hazard will provide protection at an elevation change or obstruction.



The Roof Itself. Wet and icy roofs quickly become hazards in themselves, causing slips (and potentially slides) leading to injured workers when they're called upon to repair rooftop equipment during inclement weather conditions. Additionally, large flat roofs are covered in trip hazards – conduit lines, ammonia lines, ductwork, etc. These trip hazards need to be addressed using walk platforms to clear the hazard.

What's the bottom line when it comes to rooftop protection?

Take a prioritized approach to rooftop protection, based on the critical danger areas, and how frequently each hazard is accessed by workers who perform regular maintenance to rooftop equipment. This FAQ offers a basic overview of some key considerations, but keep in mind: Every roof must be reviewed by a rooftop safety audit expert as each site is unique and your specific roof may require variable solutions.