FALL PROTECTION REGULATION FOR UTILITIES

OSHA overhauls rules for electric power generation

BY CRAIG FIRL, Capital Safety

The U.S. Occupational Safety and Health Administration (OSHA) published updated rules and regulations in April 2014 that impact fall protection for the electrical utility industry. These new regulations, which replace rules dating back to the 1970s, have been in development since 2005 and will replace guidelines that were both out-of-date and inconsistent. OSHA estimates the new rules will prevent an additional 118 workplace injuries and 20 fatalities each year.

Workers who operate or maintain electric power generation equipment, or transmission or distribution lines will be affected by the new regulations. Additionally, these new regulations will affect construction workers who erect new power lines or equipment, as well as those who alternate, convert, or improve existing lines and equipment. There are two main fall protection-related rules that are new or revised.

TWO NEW/REVISED RULES

1 Qualified employees must use fall protection when climbing or changing locations

The previous rules stated that qualified employees were not required to wear or use fall protection equipment when climbing or changing locations. Now, all qualified employees must use fall protection when climbing or changing locations on poles, towers, or similar structures. Qualified employees can avoid this rule if the employer can demonstrate that climbing or changing locations with fall protection equipment is infeasible or creates a greater hazard than climbing or changing location without it. Importantly, if the employer elects not to use fall protection equipment, the employer is solely responsible to show OSHA why fall protection is infeasible or hazardous.

2 Arc flash-compliant fall arrest equipment is required for at-height workers exposed to flames or hazards

Personal fall arrest equipment must be capable of passing a drop test after exposure to an electric arc, if the workers using fall arrest equipment are exposed to flames or electric arc hazards. The OSHA electric arc/heat energy level of over 40, less than five, calories per centimeters squared (40+/−5 cal/cm2) is the same as ASTM International’s F887 arc flash requirement: “Standard Specifications for Personal Climbing Equipment”. Therefore, if the at-height worker is exposed to flame or arc flash hazards, the use of arc flash fall arrest equipment (harnesses, lanyards, and self-retracting lanyards) is required to meet the new OSHA regulation.

OSHA’s new fall protection regulation comes into effect in June 2015. This white paper is intended to prepare electric utilities and qualified personnel with information on fall protection equipment specifically outlined in the OSHA regulation.

For starters, utilities must know that owning the appropriate products and tools is not sufficient and that practical knowledge on correct and reliable use is just as important.

NEW OSHA-COMPLIANT FALL PROTECTION CHECKLIST FOR UTILITIES

Employees in elevated locations more than four feet above the ground must now use some type of fall protection. Additionally, aerial lift fall protection, such as fall arrest or restraint systems with a full-body harness, is required. For most applications, the new rules require one of the following types of fall protection.
Fall Arrest: A personal fall arrest system stops an employee during a fall

Restraint: A restraint system prevents the user from falling any distance

Work Positioning: A work positioning system allows an employee to be supported on an elevated vertical surface and work with both hands free

Other Fall Protection: Other fall protection structures (for example, guardrails) that meet OSHA General Industry or Construction Industry standards can also prevent employees from falling.

A PERSONAL FALL ARREST SYSTEM
A personal fall arrest system is comprised of three main components: an anchorage connector, body wear (full-body harness), and a connecting device (a shock-absorbing lanyard or self-retracting lifeline). Regulations require a full-body harness for a fall arrest system and allow use of body belts only with restraint and work positioning systems.

Anchorage Connectors
Typically, users call the anchorage the tie-off point. The anchorage often consists of an I-beam, rebar, scaffolding, or lifeline. The anchorage connector (for example, a cross-arm strap, beam anchor, D-bolt, hook anchor, among others) is used to join the connecting device to the anchorage and should always be positioned to avoid a “swing fall”. All anchorages must be capable of supporting 5,000 pounds of force per worker and must be high enough for a worker to avoid contact with a lower level during a fall.

Body Wear
As previously mentioned, the only form of body wear that is acceptable for fall arrest is the full-body harness. Employers must select harnesses carefully based on the work environment and the work at hand.

Connecting Device
The critical link that joins the body wear to the anchorage/anchorage connector, and which actually bears the greatest force during a fall, is the connecting device. This device can be a shock-absorbing lanyard, fall limiter, self-retracting lifeline, or rope grab.

States with their own safety and health programs must have standards that are at least as effective as Federal standards

Employers must provide rescue equipment to ensure the prompt and safe rescue of employees from enclosed spaces

While working in a bucket or a basket, OSHA requires that workers wear fall protection equipment with the lanyard or self-retracting device connected to an anchor point on the boom or bucket/basket because mechanical failures can occur, causing workers to fall. Passing vehicles also pose a risk if they strike the truck, which may launch a worker out of the bucket.
Utility managers must calculate the potential fall distance to determine the appropriate type of connecting device. Furthermore, utility managers must factor in their employees’ working environment and the work at hand when making a decision.

**FALL RESTRAINT SYSTEMS**

An effective work restraint system provides an extremely high level of safety. These systems give employees the necessary latitude to complete their work, but limits movement past a certain point where a fall could occur. Generally, fall restraint systems are suitable if an employee needs to work at the edge of a hazard.

When fitting a fall restraint system, ensure that no free fall potential exists. Utility managers should routinely check the system to ensure the attached worker could not maneuver into a situation where he or she could free fall. Additionally, utility managers should ensure a worker’s safety in all situations where system misuse might occur (for example, workers might use other available lanyards that are too long).

Restraint system anchor points should be positioned where a user can access the anchor without being exposed to a fall hazard.

**WORK POSITIONING**

If a worker is required to perform a task at height and he or she needs to work hands free, then the safest form of fall prevention is a work positioning system.

A work positioning system uses equipment to restrict movement and hold or suspend the worker in place to carry out a task, thereby creating a safe working zone. Care should be taken when setting up the system to ensure that the safe working zone is effective, as once in place the worker’s level of awareness will decrease.

An effective work position system is comprised of 1) an anchor point, 2) a connecting device that supports the worker, and 3) a body support device (harness or work positioning belt).

If an employee is fully reliant upon a work positioning system for his or her primary support, some applications then require a secondary connection as a backup.

Work positioning systems must be rigged so workers can free fall no more than two feet, and anchorages must be capable of supporting at least twice the potential impact load of an employee’s fall or 3,000 pounds, whichever is greater.

Wood pole fall restriction devices meeting the ASTM F887 standard are deemed to meet the anchorage strength requirement when used in accordance with manufacturer’s instructions.

**OTHER FALL PROTECTION SYSTEMS**

Other fall protection systems, such as platforms, safety nets and guardrails, do not require special equipment or active participation from the worker and can be installed around the perimeter of a work area to catch an employee. These types of systems can also serve as excellent work platforms.

**SCHEDULING A TRAINING SESSION**

Regular safety training for utility managers and workers is always important, but day-to-day demands and a never-ending string of deadlines can make it challenging to squeeze training sessions into the schedule. This change in OSHA regulations is the perfect opportunity for electric utilities to offer appropriate staff a refresher course on equipment usage and fall protection practices.

A Personal Fall Arrest System is comprised of an anchorage, full-body harness and a connecting device, such as a shock-absorbing lanyard or self-retracting lifeline. Full-body harnesses are required for a fall arrest system. Body belts are only allowed to be used with restraint and work positioning systems.
Many world-leading designers and manufacturers of height safety and fall protection equipment, such as Capital Safety, offer training courses to anyone who works at height or in confined spaces. Both standard and customized fall protection courses are available at training centers worldwide. Training not only helps keep workers safe, but also helps employers comply with OSHA, and other safety regulations within the power industry.

In addition, many training resources are available online. For example, Capital Safety’s “Thinking about Fall Protection” videos introduce you to all aspects of fall protection and industry safety requirements. These safety training videos, which are broken down into 11 chapters, can be downloaded or viewed on YouTube, and provide fall protection safety knowledge ranging from compliant to expert solutions.

Any basic fall prevention training will teach you to:
• Understand the definitions of fall prevention, fall restraint, and fall arrest
• Understand the requirements of fall protection
• Recognize the hazards associated with fall protection
• Know where to seek help and advice for fall protection
• Know how to inspect and wear personal fall arrest system equipment (PFAS)
• Know the requirements for anchorage points and how to tie off to them

Additionally, basic training programs address many other important details about each tool and piece of fall prevention equipment. For example, workers must inspect body harnesses before use (experts must review these devices annually). Furthermore, users should never modify or paint body harnesses, unless material is approved for this purpose. Lastly, electric utilities should remove harnesses from service immediately if exposed to an impact.

Similarly, connectors should never be tied back to themselves, unless specifically designed for this use. They should always be worn with the impact absorber/shock pack at the D-ring, and should have the appropriate clip for the intended anchorage points. For example, workers must never use large climbing/rebar/ladder hooks with “beamers”.

ACT NOW
Once qualified climber exemptions for fall protection use change in June all employees working at height must receive the tools and training required to meet these new OSHA requirements. It is on both employees and their employers to know how these changes will affect their work and worksites, and to receive the necessary training required.

FAMOUS LAST WORDS
Every employer, as of January 2015, must assess the workplace for arc flash hazards and make reasonable estimates of incident energy. Additionally, employers are required to acquire and pay for all appropriate protective gear that the electric power generation, transmission, and distribution standards require.