OSHA CFR 1910.269 Final Rule 2015:
Vertical Hazards in Power Generation, Transmission and Distribution

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29 CFR 1910.269, *Electric Power Generation, Transmission, and Distribution* intends to reduce electrical hazard risk to workers, not only within the electric utility industry, but also within other facilities that operate and maintain transmission and distribution systems. In 2014, OSHA (Occupational Safety and Health Administration) published the 1910.269 final rule revision to this 40-year-old standard to enhance clarity and reflect changing times. Differences between OSHA's rules for general industry and for construction have been streamlined to be much more consistent.

In order to resolve outstanding matters, OSHA delayed compliance deadlines for certain requirements until 2015 and are now in effect. New and revised requirements include:

- Host employer and contract employer exchange of safety-related information
- Minimum approach distances
- Arc-flash protection
- Fall protection

Establishing a relatively safe working environment from the outset is addressed in part via mandated communication among host employers, contract employers and employees. Engineering analyses are required to determine minimum approach distances in proximity to high-voltage environments. Arc hazard heat energy estimates must be calculated in order to provide arc flash-rated personal protective equipment to workers at risk. Fall protection is addressed not only as it relates to free fall distance, but also to climbing on vertical structures and vertical climbing systems.

This paper highlights certain portions of the final rule that are relevant to those working within power generation, transmission and distribution systems. Italicized areas have been quoted directly from the final rule.

1910.269(A)(3) INFORMATION TRANSFER

To improve overall workplace safety by requiring exchange of safety-related information, host employers must inform contract employers of certain information prior to start of work, such as *characteristics of the host employer's installation that are related to the safety of the work to be performed*. Information is to be passed along to employees in a way that enables compliance with the standard.

1910.269(L)(3) MINIMUM APPROACH DISTANCES

To help safeguard unprotected workers from hazardous close proximity to energized lines and equipment, the final rule provides newly updated determination methods. Concerning voltages higher than 72.5 kilovolts, employers must *determine the maximum anticipated per-unit transient overvoltage, phase to ground, through an engineering analysis or assume a maximum anticipated per-unit transient overvoltage, phase-to-ground, in accordance with Table R-9 or Table V-8,* [of the standard] *respectively.*

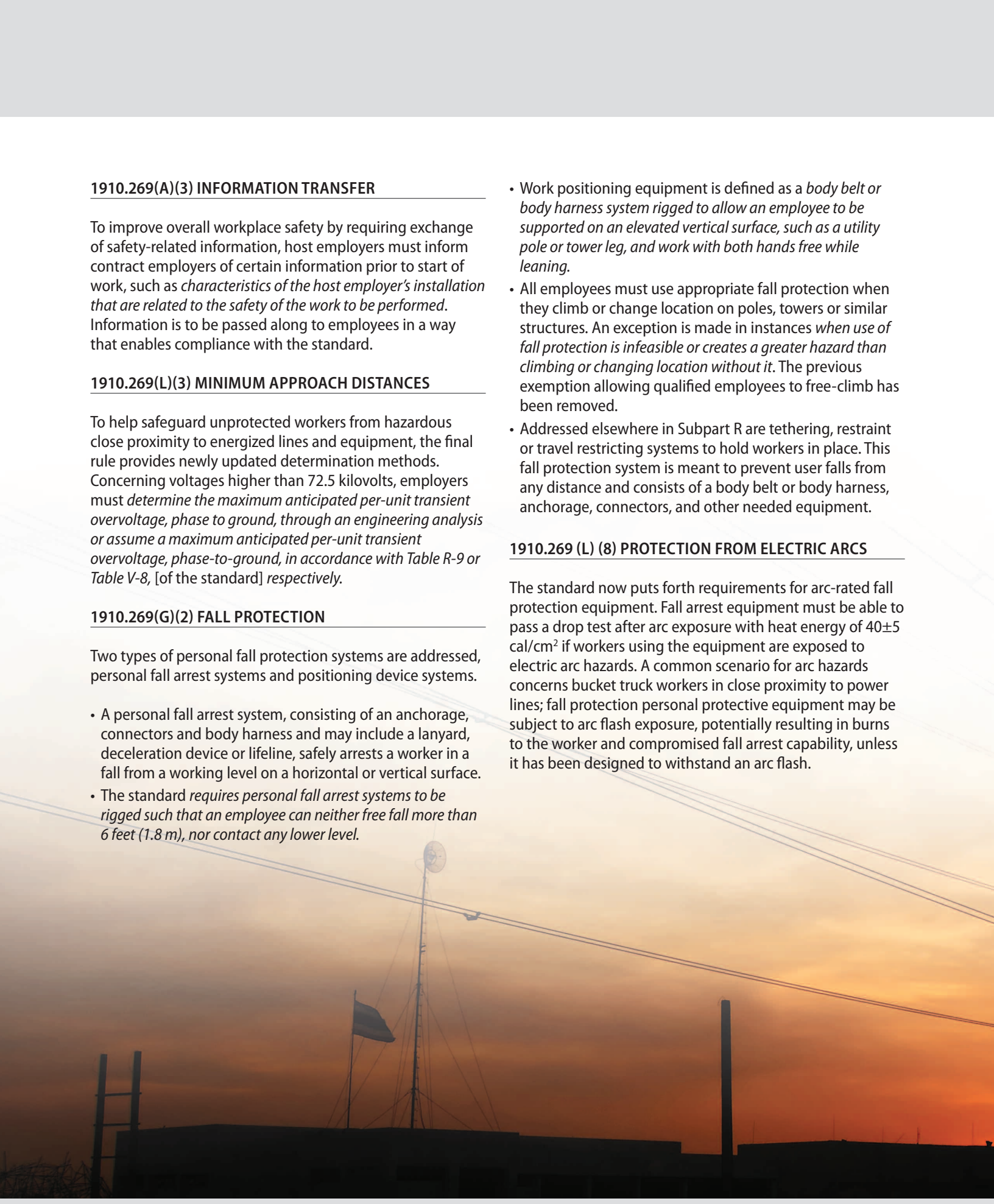
1910.269(G)(2) FALL PROTECTION

Two types of personal fall protection systems are addressed, personal fall arrest systems and positioning device systems.

- A personal fall arrest system, consisting of an anchorage, connectors and body harness and may include a lanyard, deceleration device or lifeline, safely arrests a worker in a fall from a working level on a horizontal or vertical surface.
- The standard *requires personal fall arrest systems to be rigged such that an employee can neither free fall more than 6 feet (1.8 m), nor contact any lower level.*
- Work positioning equipment is defined as a *body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a utility pole or tower leg, and work with both hands free while leaning.*
- All employees must use appropriate fall protection when they climb or change location on poles, towers or similar structures. An exception is made in instances *when use of fall protection is infeasible or creates a greater hazard than climbing or changing location without it*. The previous exemption allowing qualified employees to free-climb has been removed.
- Addressed elsewhere in Subpart R are tethering, restraint or travel restricting systems to hold workers in place. This fall protection system is meant to prevent user falls from any distance and consists of a body belt or body harness, anchorage, connectors, and other needed equipment.

1910.269 (L) (8) PROTECTION FROM ELECTRIC ARCS

The standard now puts forth requirements for arc-rated fall protection equipment. Fall arrest equipment must be able to pass a drop test after arc exposure with heat energy of 40±5 cal/cm^2 if workers using the equipment are exposed to electric arc hazards. A common scenario for arc hazards concerns bucket truck workers in close proximity to power lines; fall protection personal protective equipment may be subject to arc flash exposure, potentially resulting in burns to the worker and compromised fall arrest capability, unless it has been designed to withstand an arc flash.



- Employers must assess workplaces to determine those workers who are exposed to electric arc hazards.
- OSHA had already recognized the need for work positioning equipment to pass a flammability test.
- Under certain conditions, the outer layer of clothing worn by employees must be flame-resistant.
- In addition, employers must estimate incident heat energy of arc hazards to which workers would be exposed, and **must provide those workers** *with protective clothing and other protective equipment with an arc rating greater than or equal to the estimated heat energy*.

CONDUCTIVITY

A subject that is prone to potential confusion for users of arc flash fall protection equipment is *conductivity*, a separate safety concern from that of arc flash protection. Arc flash products are designed to resist high heat and energy. Conductivity concerns a **product's ability** to conduct electricity. Common methods used to reduce conductivity of personal protective equipment include use of hardware coated with PVC, thereby insulating metal hardware away from workers. However, this practice may not eliminate all risk.

Neither OSHA nor ASTM F887 address electrical conductivity of fall protection equipment as no formal test method exists. Workers must also maintain minimum approach distances to prevent workers from contact with energized sources. As a result, exposed metal components such as D-rings and buckles used on arc flash fall arrest equipment are still common in the industry.

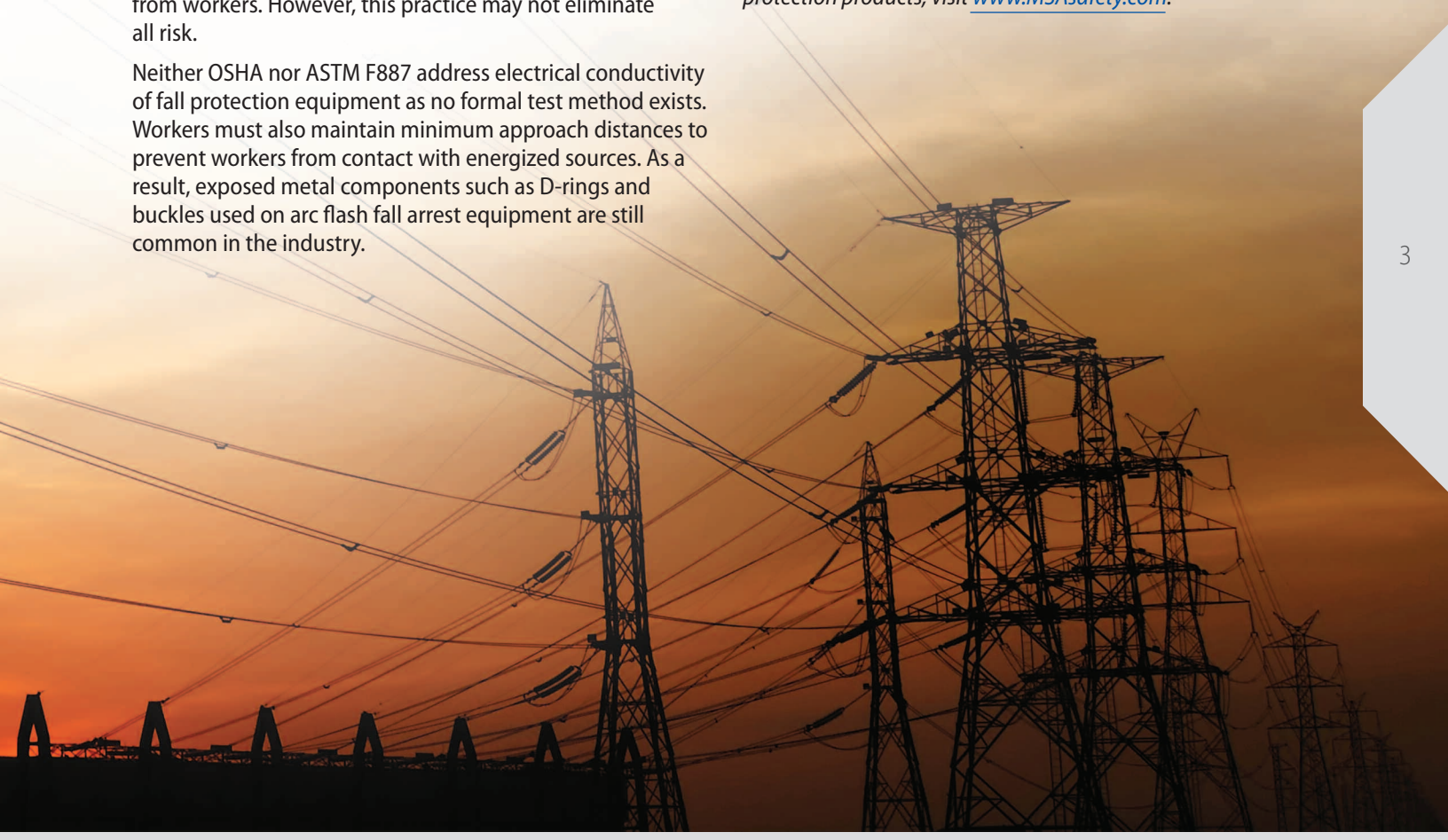
CONCLUSION

The final rule is likely to produce higher levels of worker safety by reducing the number of electrical shocks, burns, falls from heights, and other accidents, injuries and deaths associated with power generation, transmission and distribution. OSHA's revised standards are intended to provide consistent requirements for work performed within both construction and general industry standards.

As part of implementation, OSHA suggests that employers review the publication, ***Training Requirements in OSHA Standards and Training Guidelines***, Voluntary Training Guidelines, Section III, to assess employee risk to electrical hazards including electrical shock, arc flash or arc blast. OSHA also references new 1910.269 Appendix E – ***Protection from Flames and Electric Arcs*** for guidance as to estimating available heat energy.

For more information concerning OSHA CFR 1910.269, visit www.osha.gov/dsg/power_generation/.

For more information regarding MSA arc flash-rated fall protection products, visit www.MSAsafety.com.



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Note: This bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.

ID 2300-169-MC / Sept 2015

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