

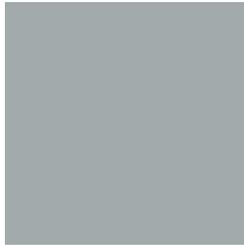


Electrical
Safety

Navigating the Changes to OSHA's Electrical Safety Standards

Specific to Flame Resistant Clothing and
Personal Protective Equipment

ELECTRICAL
SAFETY STANDARDS



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Electrical Safety

Navigating OSHA's Electrical Safety Standards Changes

Many employees who work in the generation, transmission and distribution of electricity perform work without the proper Personal Protective Equipment (PPE).¹ PPE, including flame-resistant clothing (FRC), helps protect workers from arc flashes and electrical explosions that can injure an employee.

To help utility companies more effectively establish work practices that promote worker safety, the Occupational Safety and Health Administration (OSHA) recently updated its Electric Power Generation, Transmission, and Distribution (1910.269) and its Electrical Protective Equipment (1926.950-60) standards.² These standards, which affect 200,000 employees in North America, had not been updated since 1972 and 1994 respectively. Understanding the new requirements, key deadlines and important next steps will help organizations maintain compliance, avoid costly fines and keep workers safe. However, the updates are more than 425 pages and require an extensive time commitment to review. While all employers should review the updates and enlist the assistance of counsel and other safety professionals to ensure compliance with these new regulations, this guide can help you identify key elements of the new standards as it relates to your FRC and PPE programs.³

1 Who is affected?

The standards affect multiple industries, including the **utility industry** (power generation, transmission and distribution) because its workers face on-the-job risks such as arc flashes. For a full list of positions impacted, review Table 19 from OSHA's Final Rule (29 CFR Parts 1910 and 1926).⁴

TABLE 19—PROFILE OF AFFECTED ESTABLISHMENTS AND EMPLOYEES

| Industry code | Industry name | Affected firms | Affected establishments | Affected employees |
|---------------|---|----------------|-------------------------|--------------------|
| NAICS 234910 | Water, Sewer, and Pipeline Construction | 106 | 1,021 | 1,262 |
| NAICS 234920 | Power and Communication Transmission Line Construction | 2,870 | 3,412 | 34,740 |
| NAICS 234930 | Industrial Nonbuilding Structure Construction | 158 | 321 | 1,846 |
| NAICS 234990 | All Other Heavy Construction | 28 | 791 | 7,395 |
| NAICS 236110 | Electrical Contractors | 51 | 1,945 | 21,686 |
| NAICS 236190 | Structural Steel Erection Contractors | 120 | 786 | 309 |
| NAICS 236910 | Building Equipment and Other Machine Installation Contractors | 202 | 1,148 | 373 |
| NAICS 236990 | All Other Special Trade Contractors | 313 | 3,150 | 37,540 |
| NAICS 225950 | Electric Power Generation | 625 | 2,174 | 37,540 |
| NAICS 225990 | Electric Power Transmission, Control, and Distribution | 1,232 | 7,440 | 64,179 |
| NAICS 221110 | Major Publicly Owned Utilities | 277 | 927 | 8,582 |
| NAICS 221120 | Industrial Power Generators | 197 | 913 | 17,372 |
| Various | Various | | | |

***The category "Major Publicly Owned Utilities" does not have its own NAICS code. In this analysis, OSHA used the NAICS code 2211, which encompasses both privately and publicly owned utilities, to refer to "Major Publicly Owned Utilities" only, as OSHA found it necessary to account for the costs to private utilities separately from the costs to private utilities. Similarly, OSHA used NAICS 221110 and NAICS 221120 to refer to privately owned utilities only, even though these NAICS codes include privately and publicly owned utilities. ***The rule will affect Major Publicly Owned Utilities that operate in OSHA State-plan States. State-plan States cover about half of total U.S. employment. They operate their own OSHA-approved occupational safety and health programs and work under formal agreements with OSHA. OSHA's equivalent State regulatory requirements on public employment operating under public sector unions within their jurisdictions. ***BLS Occupational Employment Statistics data (2) indicated that 4 percent of establishments in NAICS 541790 employ Tree Trimmers and Shrub Trimmers, and BLS Quarterly Census of Employment and Wages (3) data indicated that there were 6,488 establishments in NAICS 541790 employ tree trimmers. The portion of establishments with fewer than 20 employees was estimated based on the distribution of establishment sizes in NAICS 541790 as a whole, as reported in the 2007 U.S. Census's Statistics of U.S. Businesses (4). ***The National Adversity Association independently changed its name to the National Tree Care Industry Association. ***In this paragraph, as elsewhere in this section of the proposal, OSHA is presenting ratios in a general, but rounded, format. For instance, the all-employee ratio in this case is 21:103 in percent. This same ratio in the precise series of numbers in the CENSTAT analysis, OSHA used the same precise numbers in the calculation presented in this table.

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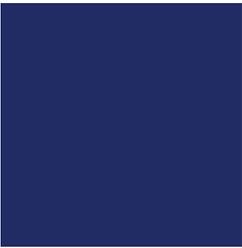
TABLE 19—PROFILE OF AFFECTED ESTABLISHMENTS AND EMPLOYEES—Continued

| Industry code | Industry name | Affected firms | Affected establishments | Affected employees |
|---------------|------------------------------------|----------------|-------------------------|--------------------|
| SIC 0785 | Ornamental Shrub and Tree Services | 200 | 301 | 15,086 |
| Total | | 6,488 | 24,407 | 211,452 |

Note: Totals may not equal the sum of the components due to rounding. Source: CONRAD (5), EIA (49, 53), U.S. Census (4).

Upper management should understand the standards because they adopt existing national consensus standards and replace other out-of-date consensus standards with a set of performance-oriented requirements.⁵ Organizations must conduct assessments and provide PPE to workers that meet the defined level of hazard. **Safety directors and other safety professionals** also need to understand OSHA's revisions in order to properly prepare workers and keep track of compliance with several key deadlines. **Workers** need to be aware of how some of the changes might affect their jobs.

Things You Need to Know



2 What changes did OSHA make to the 1910.269 and 1926.950-60 standards?

OSHA made several updates to the 1910.269 and 1926 subpart V standards. These changes, as they relate to FR and PPE programs, include:⁶

- Employers must assess the workplace to determine which workers are exposed to flame or electric arc hazards.
- Employers must estimate the incident heat energy of potential electric arc hazards.
- Employers must provide employees exposed to electric arc hazards with protective clothing and other PPE with an arc rating greater than or equal to the estimated incident energy.
- Employers are responsible for ensuring the appropriate selection, use, care and maintenance of PPE.⁷

3 What are the important deadlines I need to recognize?

Safety directors should note the following dates and complete necessary changes ahead of them.

- Although the new standards are effective as of July 10, 2014, OSHA pushed the deadline or non-compliance citations to December 31, 2014. This affects enforcement of certain requirements for employers who are currently complying with the existing General Industry rule. By **December 31**, organizations must have their employees in the appropriate PPE, including FR apparel.⁸
- Employers must make reasonable estimates of incident energy by **January 1, 2015**.
- Based on the electric arc flash analysis, employers must then provide employees with protective clothing and other PPE with an arc rating that meets the identified hazard levels by **August 31, 2015**. Some organizations will achieve compliance with a single layer of FR apparel while others may need to provide a base layer to be worn under additional FR apparel or an overlayer to be worn in addition to their FR apparel.
- Until **August 31, 2015**, no citations will be issued under the revised standards because an employer failed to provide protective clothing or equipment rated higher than 8 cal/cm².⁹



4 What is the anticipated impact of these revisions?

OSHA foresees compliance with these new requirements will prevent approximately 20 fatalities and 118 serious injuries per year, in addition to the fatalities and injuries already prevented by the existing Construction and General Industry standards.¹⁰ The estimated net benefits of the final rule are roughly \$130 million annually. Since the updated standards are believed by OSHA to be easier to understand, the intent is that this will also improve safety by facilitating compliance.¹¹



5 What types of apparel and PPE options are available to maintain compliance?

The revisions require employees' outermost layer of clothing to be flame resistant. Face shields and balaclavas can also be used to protect the face of workers exposed to arc flashes. Today, organizations can select from a variety of PPE, including FRC. PPE and garments should always function well together so organizations may find it ideal to purchase or rent these from one source. Apparel and PPE must have a rating equivalent to the arc hazard level associated with the job because different risks require different protection.¹²

Advancements in apparel technology have enabled FR garments to be comfortable and breathable. Although companies want to protect their employees, they don't want garments to cause additional problems, such as heat stress. Organizations should look for options that are comfortable, functional and can wick away moisture.

6 How do I care for FR garments to stay compliant and ensure integrity over time?

OSHA notes that there are a variety of methods for preserving FR apparel but that maintenance is the responsibility of employers, not employees. Some employees launder apparel at home while some employers hire professional laundering services. For home laundering, to comply with 1910.132 and 1926.95, employers can't just instruct employees to follow label instructions. They must train employees in proper laundering procedures and techniques because the proper water temperature and cleaning agents should be used. Employers must inspect the clothing on an ongoing basis to check for defects such as holes and make necessary replacements.¹³

Organizations can utilize a professional laundering service to assist with maintaining garment effectiveness against hazards. Most FRC wearers who launder at home don't have water temperatures high enough or cleaning agents robust enough to remove the petroleum-based substances that can sometimes stay on and compromise FR clothing. Professional laundry services, however, can assist with the proper care of FR garments. Offering the proper water temperatures, water softness and cleaning agents, industrial laundering provides organizations assistance with the maintenance of the flame resistant qualities of the garment.



7 How can I encourage workers to wear the provided garments and PPE?

Training is key for demonstrating the risks associated with utility work, highlighting basic inspection tips, encouraging employees to always wear FR garments and PPE, and showing how garments and PPE should fit and be worn. Organizations should conduct training when employees are first hired, when regulations or job functions change and when timely or important safety issues arise. Encourage workers to look out for one another and post signage throughout work areas that remind them to wear FR apparel and PPE throughout the workday.

8 Who can help me set up and manage an FRC and/or PPE program?

Certain vendors can provide FR garments and PPE products for head, face and hand protection, conduct fit sessions, maintain the PPE items over time and offer a variety of training courses for managers and employees. Many utility companies control the costs associated with purchasing FR clothing and PPE by renting or leasing daily wear, such as shirts and pants. Under uniform rental programs, weekly route services are used to collect garments, and the clothing is inspected, laundered and repaired in a manner to maintain the flame resistant properties of the garments, replaced if necessary and returned ready for wear. Under lease programs, employees are responsible for inspections and laundering, but the vendor helps with repairs, size changes, delivery and management of the program. It's best to work with a vendor that regularly inspects garments and repairs damaged or defective items with FR materials or replaces them altogether. Items that aren't worn every day can be purchased and cleaned as needed.

9 Where can I get more information about the revised standards?

For more information about other changes with the revised standards, reference the Electric Power Generation, Transmission and Distribution Standard webpage, OSHA's Fact Sheet and the Final rule publication.



A New Era

Electrical utility workers not only work in inclement weather, they often handle wiring charged with up to 765,000 volts of electricity. With the revisions to OSHA's Electric Power Generation, Transmission, and Distribution and Electrical Protective Equipment standards, organizations must institute the revised protective standards or face fines. Delaying compliance with the revisions could also put workers' well-being at risk. Being aware of these key changes, deadlines and suggested practices will help your organization more easily transition to this new era of electrical safety.

For more information about solutions for improving your workplace safety, please visit www.cintas.com.

Information in this E-Guide is based on regulations as of February 10, 2016.

¹Banjo, S. (2013, May 15) What the Well-Dressed Fracker Is Wearing. The Wall Street Journal. Retrieved from <http://online.wsj.com/news/articles/SB10001424127887323798104578453310080203022>

²U.S. Department of Labor. (2014). OSHA announces that the final rule revising standards for electric power generation, transmission and distribution has been published in the Federal Register [Press release]. Retrieved from https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASES&p_id=25854

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⁴29 CFR Parts 1910 and 1926. "Electric Generation, Transmission and Distribution: Electrical Protection Equipment; notice of final rule," 79 Federal Register 70 (11 April 2014), pp. 20564

⁵29 CFR Parts 1910 and 1926. "Electric Generation, Transmission and Distribution: Electrical Protection Equipment; notice of final rule," 79 Federal Register 70 (11 April 2014), pp. 20317

⁶Occupational Safety and Health Administration. OSHA Fact Sheet. Retrieved from https://www.osha.gov/dsg/power_generation/subpart_v_factsheet.pdf

⁷29 CFR Parts 1910 and 1926. "Electric Generation, Transmission and Distribution: Electrical Protection Equipment; notice of final rule," 79 Federal Register 70 (11 April 2014), pp. 20498 - 20501

⁸Occupational Safety and Health Administration. Electric Power Generation, Transmission and Distribution Standard. Retrieved from https://www.osha.gov/dsg/power_generation/

⁹Edison Electric Institute v. Occupational Safety and Health Administration, 48. (13 February 2015). Retrieved from https://www.osha.gov/dsg/power_generation/FinalSettlement.pdf

¹⁰Occupational Safety and Health Administration. Electric Power Generation, Transmission and Distribution Maintenance and Construction Frequently Asked Questions. Retrieved from https://www.osha.gov/dsg/power_generation/faqs.html

¹¹Occupational Safety and Health Administration. OSHA Fact Sheet. Retrieved from https://www.osha.gov/dsg/power_generation/subpart_v_factsheet.pdf

¹²29 CFR Parts 1910 and 1926. "Electric Generation, Transmission and Distribution: Electrical Protection Equipment; notice of final rule," 79 Federal Register 70 (11 April 2014), pp. 20317

¹³29 CFR Parts 1910 and 1926. "Electric Generation, Transmission and Distribution: Electrical Protection Equipment; notice of final rule," 79 Federal Register 70 (11 April 2014), pp. 20498-20501