

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

**SUPPORTING STATEMENT FOR THE
INFORMATION COLLECTION REQUIREMENTS FOR THE
ELECTRICAL STANDARDS FOR CONSTRUCTION
(29 CFR PART 1926, SUBPART K) AND
GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
OFFICE OF MANAGEMENT AND BUDGET (OMB)
CONTROL NO. 1218-0130 (May 2018)**

A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.

The main objective of the Occupational Safety and Health Act of 1970 (i.e., “the Act”) is to “assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources” (29 U.S.C. 651). To achieve this objective, the Act authorizes “the development and promulgation of occupational safety and health standards” (29 U.S.C. 651).

Section 6(b)(7) of the Act specifies that “[a]ny standard promulgated under this subsection shall prescribe the use of labels or other appropriate forms of warning as are necessary to insure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure.” This provision goes on to state that “[t]he Secretary, in consultation with the Secretary of Health and Human Services, may by rule promulgated pursuant to section 553 of title 5, United States Code, make appropriate modifications in the foregoing requirements relating to the use of labels or other forms of warning . . . as may be warranted by experience, information, or medical or technological developments acquired subsequent to the promulgation of the relevant standard” (29 U.S.C. 655).

Under the authority granted by the Act, the Occupational Safety and Health Administration (“OSHA” or “the Agency”) published the Electrical Standards for Construction (29 CFR part 1926, subpart K) and General Industry (29 CFR part 1910, subpart S); i.e., “the Standards”). The Standards address safety procedures for installation and maintenance of electric utilization equipment that prevent death and serious injuries among construction and general industry workers in the workplace caused by electrical hazards.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the Agency has made of the information received from the current collection.

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)

1218-0130

May 2018

The information collection provisions in these subparts require labels, markings, written programs, notifications, and tags to alert workers of the presence and the different types of electrical hazards found in the workplace, thereby, preventing serious injuries and deaths from electrocutions.

The following provisions do not contain an information collection requirement because the employer does not develop, collect, or maintain the information specified by the provisions. Instead, the manufacturer provides the information on the equipment (i.e., it is usual and customary for employers to purchase equipment that have these markings). Therefore, OSHA is not determining the cost or burden hours for these provisions under Item 12 of this Supporting Statement.

Standard	Description
Subpart K	
§1926.403(g)	Marking.
§1926.405(g)(2)(ii)	Identification, splices, and terminations-marking.
§1926.404(f)(7)(iv)(C)(6)	Equipment connected by cord and plug.
§1926.405(j)(3)(iii)	Appliances – rating.
§1926.407(b)(2)(ii)	Approved for the hazardous (classified) location –marking.
Subpart S	
§1910.303(e)(1)&(2)	Marking--Identification of manufacturer and ratings & Durability.
§1910.304(b)(2)(iv)(C)(2)	Receptacles and cord connectors.
§1910.304(b)(2)(iv)(C)(3)	Receptacles and cord connectors.
§1910.304(f)(1)(ix)	Overcurrent protection -- 600 volts, nominal, or less.
§1910.304(g)(6)(vii)(B)	Supports, enclosures, and equipment to be grounded.
§1910.305(a)(3)(ii)(A)	Cable trays.
§1910.305(a)(3)(ii)(D)	Cable trays.
§1910.305(g)(2)(i)	Identification, splices, and terminations.
§1910.305(j)(3)(iii)	Appliances.
§1910.306(h)(3)(ii)	Portable electric equipment.
§1910.306(h)(4)(iii)(B)	Power supply circuits and receptacles for portable electric equipment.
§§1910.307(c)(2)(ii)(A), (B), (C),	Approved for the hazardous

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)

1218-0130

May 2018

Standard	Description
(D) and (E)	(classified) location.
§1910.307(g)(5)(ii)	Listing and marking.
§1910.308(c)(2)	Marking.
§1910.308(d)(2)(ii)	Power sources.
§1910.308(d)(4)	Identification.

The following provisions are not considered collections of information because the information is being supplied by the federal government; therefore, under 5 CFR 1320.3(c)(2), these provisions are not collections of information.

Standard	Description
Subpart K	
§1926.404(e)(1)(vi)(C)	Overcurrent protection.
§1926.405(b)(3)(ii)	Cabinets, boxes, and fittings.
Subpart S	
§1910.303(h)(5)(iii)(B)	Working space and guarding.
§1910.304(f)(1)(viii)	Overcurrent protection -- 600 volts, nominal, or less.
§1910.305(b)(3)(iii)	Pull and junction boxes for systems over 600 volts, nominal.
§1910.305(c)(3)(ii)	Connection of switches.
§1910.306(c)(8)	Warning sign for multiple disconnecting means.
§1910.306(g)(1)(iv)	Guarding and grounding.
§1910.308(a)(5)(iv)	Interrupting and isolating devices.
§1910.308(a)(5)(vi)(B)	Interrupting and isolating devices.

OSHA also will use the records developed in response to these Standards to determine compliance with the safety and health provisions of the Standards. The employer's failure to generate and disclose the information required by the Standards will affect significantly OSHA's effort to control and reduce injuries and fatalities related to electrical hazards in the workplace.

Construction--Part 1926, Subpart K

• §1926.403--General requirements

Paragraph (h) requires legible markings on each disconnecting means for motors and appliances to indicate its purpose, unless located and arranged so the purpose is evident. Each service, feeder, and branch circuit must have legible markings at its disconnecting means or overcurrent device to indicate its purpose, unless located and arranged so the purpose is evident. These

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

markings are to be of sufficient durability to withstand the environment involved.

Paragraph (i)(2)(iii) requires employers to mark entrances to rooms and other guarded locations containing exposed live parts with conspicuous warning signs forbidding unqualified persons from entering.

Paragraph (j)(2)(ii) requires that metal-enclosed switchgear, unit substations, transformers, pull boxes, connection boxes, and similar equipment have appropriate caution signs.

• **§1926.404--Wiring design and protection.**

Paragraph (b)(1)(iii)(A) requires construction employers who implement an assured-equipment grounding-conductor (AEGC) program that covers cord sets, non-permanent receptacles, and equipment connected by a cord and plug, to have a written description of the program, including the specific procedures adopted by the employer, and to make this written program available at the job site for review and copying by OSHA compliance officers and affected employees.

Under paragraphs (b)(1)(iii)(E), the employer must test all cord sets, receptacles that are not part of the permanent wiring of the building or structure, and cord- and plug-connected equipment that require grounding. Employers are to perform these tests before: first using the equipment; returning the equipment to service following repair; and using equipment after any incident that the employer reasonably suspects damaged the equipment. In addition, an employer must conduct testing at least every three months, except for fixed cord sets and receptacles not exposed to damage, which employers must test at least every six months.

Paragraph (b)(1)(iii)(G) requires employers to record these tests, including the identity of each receptacle, cord set, and cord- and plug-in connected equipment that passed the test, and the previous testing date or interval covered by the last test. The employer is to maintain the records using logs, color-coding, or other effective means until replaced by the next record, and make them available at the job site for inspection by OSHA compliance officers and affected employees.

Paragraph (d)(2)(ii) requires employers to post signs warning of high voltage when employees, other than qualified employees, may come in contact with energized live parts.

• **§1926.405--Wiring methods, components, and equipment for general use.**

Paragraph (h) requires marking each termination enclosure with a high-voltage hazard warning.

Paragraph (j)(4)(ii)(A) requires that employers mark controller-disconnecting means for motor-branch circuits over 600 volts, nominal, and that are out of sight of the controller, with a warning label giving the location and identification of the disconnecting means that is to be locked in the open position.

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

Paragraph (j)(5)(ii) requires employers to indicate the operation voltage of exposed live parts of transformer installations by using warning signs or visible markings on the equipment or structure.

Paragraph (j)(6)(ii)(A) requires that capacitors rated over 600 volts, nominal, have isolating or disconnecting switches (with no interrupting rating) that interlock with the load-interrupting device or have a prominently displayed caution sign to prevent switching load current.

• **§1926.408--Special systems.**

Paragraph (a)(2)(iii) requires that isolating means not designed to interrupt the load current of the circuit either be interlocked with an approved circuit interrupter or provided with a sign warning against opening them under load.

Paragraph (a)(3)(i) requires that a metallic enclosure provided on the mobile machine for enclosing the terminals of the power cable must have provision for locking so only authorized qualified persons may open it, and it must have a sign warning of the presence of energized parts.

Paragraph (a)(3)(ii) requires employers to enclose energized switching and control parts in effectively grounded and locked metal cabinets or enclosures that are accessible only to authorized qualified persons, and that have a sign warning of the presence of energized parts.

• **§1926.416--General requirements.**

Paragraph (a)(3) requires warning signs to alert employees to the presence of energized electric-power circuits, and to advise them of the location of such lines, the hazards involved, and what protective measures to take.

• **§1926.417--Lockout and tagging of circuits.**

Paragraphs (a), (b), and (c) require employers to tag deactivated controls to energized or deenergized circuits and equipment while employees are working on them. In addition, employers are to render deenergized equipment and circuits inoperative, and attach tags at points that control the release of energy to the deenergized circuits and equipment. These tags must plainly identify these circuits and equipment.

General Industry-- Part 1910, Subpart S

• **§1910.303--General requirements.**

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

Paragraphs (f)(1) & (2) require legible markings on each disconnecting means for motors and appliances to indicate its purpose, unless located and arranged so the purpose is evident. Each service, feeder, and branch circuit, at its disconnecting means or overcurrent device, must have legible markings to indicate its purpose, unless located and arranged so the purpose is evident. These markings are to be of sufficient durability to withstand the environment involved.

Paragraph (f)(5)(i) and (ii) of this section requires the employer to mark in the indicated field the circuit breakers' and fuses' series combination ratings of the equipment given by the manufacturer. The wording shall state "Caution - Series Combination System Rated _____ Amperes Identified Replacement Component Required." The employer has to legibly mark on the blank that rating.

Paragraph (g)(2)(iii) requires employers to mark entrances to rooms and other guarded locations containing exposed live parts with conspicuous warning signs forbidding unqualified persons to enter.

Paragraph (h)(2)(iii)(B) (previously §1910.303(h)(2)(ii)) requires that metal-enclosed switchgear, unit substations, transformers, pull boxes, connection boxes, and similar equipment have appropriate caution signs.

• **§1910.304--Wiring design and protection.**

Paragraph (b)(1) of this section requires the employer to identify the phase and system of each ungrounded conductor of a multiwire branch circuit in a building containing more than one nominal voltage system. This marking is required to be permanently posted on each panelboard.

Paragraph (b)(3)(ii)(C)(1) requires a written description of the [assured equipment grounding conductor (AEGC)] program, including the specific procedures adopted by the employer, shall be available at the jobsite for inspection and copying by the Assistant Secretary of Labor and any affected employee[.]

Paragraph (b)(3)(ii)(C)(6) requires tests performed as required in paragraph (b)(3)(ii)(C) of this section shall be recorded. This test record shall identify each receptacle, cord set, and cord- and plug-connected equipment that passed the test and shall indicate the last date it was tested or the interval for which it was tested. This record shall be kept by means of logs, color coding, or other effective means and shall be maintained until replaced by a more current record. The record shall be made available on the jobsite for inspection by the Assistant Secretary and any affected employee.¹

¹Paragraph (b)(3)(ii)(C)(4) of the section specifies the testing requirements as follows: "The following tests shall be performed on all cord sets and receptacles which are not a part of the permanent wiring of the building or structure, and cord- and plug-connected equipment required to be grounded: (i) All equipment grounding conductors shall be tested for continuity and shall be electrically continuous; (ii) [e]ach receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

Paragraph (e)(2)(ii) (previously §1910.304(d)(2)(ii)) requires employers to post signs warning of high voltage when employees, other than qualified employees, may come in contact with energized live parts.

• **§1910.305--Wiring methods, components, and equipment for general use.**

Paragraph (h)(8) requires marking each termination enclosure with a high-voltage hazard warning.

Paragraph (j)(4)(ii) requires that employers mark controller-disconnecting means for motor-branch circuits over 600 volts, nominal, and that are out of sight of the controller, with a warning label giving the location and identification of the disconnecting means that is to be locked in the open position.

Paragraph (j)(5)(ii) requires that employers indicate the operating voltage of exposed live parts of transformer installations by using warning signs or visible markings on the equipment or structure.

Paragraph (j)(6)(ii)(C) (previously §1910.305(j)(6)(ii)(A)) requires that capacitors rated over 600 volts, nominal, have isolating or disconnecting switches (with no interrupting rating) that interlock with the load interrupting device or have a prominently displayed caution sign to prevent switching load current.

• **§1910.306--Specific purpose equipment and installations.**

Paragraph (c)(6)(i) requires the employer to identify the disconnecting means with the number that corresponds to the driving machine number that it controls where there is more than one driving machine in the machine room.

Paragraph (c)(6)(ii) requires the employer to provide the disconnecting means with a sign to identify the location of the supply side overcurrent protective device.

Paragraph (k)(4)(iv)(B) requires the employer to list single-pole separable connectors used in portable professional motion picture and television equipment and to mark the system to which they are connected.

• **§1910.307--Hazardous (classified) locations.**

conductor shall be connected to its proper terminal; and (iii) [a]ll required tests shall be performed before first use; before equipment is returned to service following any repairs; before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over); and at intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months[.]

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

Paragraph (b) requires that the employer document all areas designated as hazardous (classified) locations. This documentation shall be available to those authorized to design, install, inspect, maintain, or operate electric equipment at the location.

• **§1910.308--Special systems.**

Paragraph (a)(5)(vii) (previously §1910.308(a)(2)(iii)) requires a means (for example, a fuseholder and fuse designed for the purpose) shall be provided to completely isolate equipment for inspection and repairs. Isolating means that are not designed to interrupt the load current of the circuit shall be either interlocked with an approved circuit interrupter or provided with a sign warning against opening them under load.

Paragraph (a)(6)(i) (previously §1910.308(a)(3)(i)) requires that a metallic enclosure provided on the mobile machine for enclosing the terminals of the power cable must have provisions for locking so only authorized qualified persons may open it, and it must have a sign warning of the presence of energized parts.

Paragraph (a)(6)(ii) (previously §1910.308(a)(3)(ii)) requires employers to enclose energized switching and control parts in effectively grounded and locked metal cabinets or enclosures that are accessible only to authorized qualified persons, and be marked with a sign warning of the presence of energized parts.

Paragraph (b)(3)(i) requires the employer to place a sign at the service entrance equipment indicating the type and location of on-site emergency power sources. A sign is not required for individual unit equipment.

Paragraph (b)(3)(ii) requires a sign at the grounding location that identify all emergency and normal sources connected at the location.

• **§1910.333--Selection and use of work practices.**

Paragraph 1910.333(b)(2)(i) requires employers to maintain a written copy of the procedure outlined in paragraph (b)(2) of this standard, and to make it available for inspection by employees and by the Assistant Secretary of Labor and his/her authorized representatives. The written procedures may be a copy of paragraph (b) of this standard.

Paragraph 1910.333(b)(2)(iii)(B) requires employers to ensure that each tag used contains a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag.

Paragraph 1910.333(b)(2)(v)(B) requires employers to warn employees exposed to the hazards associated with reenergizing the circuit or equipment to stay clear of the circuits and equipment.

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also describe any consideration of using information technology to reduce burden.

Employers may use automated, electronic, mechanical, or other technological information collection techniques, or other forms of information technology (e.g., electronic submission of responses) when establishing and maintaining the required records. The Agency wrote the paperwork requirements of the Standards in performance-oriented language (i.e., in terms of what data to collect, not how to record the data).

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purpose(s) described in A.2. above.

Some local jurisdictions enforce the National Electrical Code (NEC), which has information collection requirements similar to the requirements specified by the Standards. However, OSHA has insufficient data from which to estimate the level of duplication.

Every edition of the NEC from the 1984 edition to the 2011 edition (representing nine code cycles) requires that specific AEGC tests be conducted, recorded, and made available to the authority having jurisdiction. However, the specific authority having jurisdiction varies from state to state.

5. If the collection of information impacts small businesses or other small entities, describe the methods used to reduce the burden.

The information collection requirements specified by the Standards do not have a significant impact on a substantial number of small entities. The Standards use performance language whenever possible to provide compliance flexibility to employers and to reduce the impact on small businesses. Performance language may require small business employers to rely more often than other employers on contractors to provide the safety and health technical expertise necessary to comply with these requirements.

6. Describe the consequence to Federal program or policy activities if the collection is or is not conducted less frequently, and any technical or legal obstacles to reducing the burden.

The Agency believes that the information collection frequencies required by the Standards are the minimum frequencies necessary to effectively monitor employee exposure to electrical hazards in construction and general industries, and thereby to fulfill its mandate “to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources” as specified by the Act at 29 U.S.C. 651.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner:

- **Requiring respondents to report information to the agency more often than quarterly;**

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)

1218-0130

May 2018

- **Requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;**
- **Requiring respondents to submit more than an original and two copies of any document;**
- **Requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records for more than three years;**
- **In connection with a statistical survey that is not designed to produce valid and reliable results that can be generalized to the universe of study;**
- **Requiring the use of statistical data classification that has not been reviewed and approved by OMB;**
- **That includes a pledge of confidentiality that is not supported by authority established in statute or regulation that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or**
- **Requiring respondents to submit proprietary trade secret, or other confidential information unless the agency can prove that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.**

No special circumstances exist that require employers to collect information using the procedures specified by this item. The requirements are within the guidelines set forth in 5 CFR 1320.5.

8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection before submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to those comments specifically address comments received on cost and hour burdens.

Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, revealed, or reported.

Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every three years -- even if the collection of information activity is the same as in prior periods. There may be circumstances that mitigate against consultation in a specific situation. These circumstances should be explained.

As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3506(c)(2)(A)), OSHA published a notice in the Federal Register (83 FR 2468) on January 17, 2018 requesting public comments on its proposed extension of the information collection requirements contained in the Electrical Standards for Construction (29 CFR part 1926, subpart K) and General Industry (29 CFR part 1910, subpart S) (Docket number OSHA-2011-0187). This notice was part of a preclearance consultation program intended to provide those interested parties the opportunity to comment on OSHA's request for an extension by the Office of Management and Budget (OMB)

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

of a previous approval of the information collection requirements found in the above Standards. The Agency did not receive any comments in response to this notice.

9. Explain any decision to provide any payments or gift to respondents, other than remuneration of contractors or grantees.

The Agency will not provide payments or gifts to the respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

The paperwork requirements specified by these Standards do not involve confidential information.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

None of the provisions in the Standards require sensitive information.

12. Provide estimates of the hour burden of the collection of information. The statement should:

- **Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. Generally, estimates should not include burden hours for customary and usual business practices.**
- **If this request for approval covers more than one form, provide separate hour burden estimates for each form.**
- **Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage-rate categories.**

Respondent Burden Hour and Cost Burden Determinations

Estimating the Wage Rates

OSHA determined the wage rates from *Occupational Employment Statistics, National Occupational Employment and Wages, May 2016*, Bureau of Labor Statistics , U.S. Department

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

of Labor, and the fringe benefits of 30.4² from the Friday, September 8, 2017 News Release, *Employer Costs for Employee Compensation – June 2017*, (percent for Standard Occupational Classifications (SOCs) 17-2071 (electrical certified engineer), 17-3023 (electrical and electronic engineering technician), and 11-9041 (engineering manager). The mean hourly wages for these classifications are \$44.14 (electrical certified engineer), \$27.92 (electrical and electronic engineering technician), and \$64.06 (engineering manager) before fringe benefits.³

The costs of labor used in this analysis are, therefore, estimates of the total hourly compensation rate. These hourly wages are:

Table 1--- Estimated Wage Rates with Fringe Benefits

Occupation	SOC	Mean hourly rates	Fringe benefit	Wage rates
Engineering Manager	11-9041	\$69.17	0.696	\$99.38
Electrical Certified Engineer	17-2071	\$47.41	0.696	\$68.12
Electrical and Electronic Engineering Technician (EET)	17-3023	\$30.27	0.696	\$43.49

Estimating Cost and Burden Hours

The following sections are the burden hour and cost determinations for the information collection requirements specified by the Standards. The data is based on the final economic analysis (FEA) prepared during the revision of the final rule for 29 CFR part 1910, subpart S, as well as OSHA's estimate of the time it would take an employee to perform the necessary electrical safety procedures.

Estimating the Number of Establishments and Employees

Construction Industries:

There are 682,390 establishments with 6,008,286 employees in the construction industry according to the 2015— County Business Patterns. At an average of 9 jobsites per establishment, OSHA estimates that there are 6,141,510 jobsites affected in the construction industry. (682,390

²Employer Costs for Employee Compensation – July 2017, http://www.bls.gov/news.release/archives/ecec_12112013.pdf
<https://www.bls.gov/news.release/pdf/ecec.pdf>

³The mean hourly rates are found on the Bureau of Labor Statistics website at: https://www.bls.gov/oes/2016/may/oes_nat.htm

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

affected establishments x 9 jobsites = 6,141,510 jobsites).

Burden-Hour and Cost Determinations

- **§1926.403(h); 1910.303(f)(1)&(2)--Identification of disconnecting means and circuits.**

The burden for this requirement applies solely to employers in the construction industry because the task occurs only during initial installation of motors and appliances. The only burden for general industry is checking that the task has been done. The Agency assumes that only 1% of the jobsites will need to mark and identify their system (1% of 6,141,510 jobsites = 61,415). OSHA estimates that it takes an EEET five minutes (.08 hr.) to mark an average 30 disconnecting means or overcurrent devices usually found on a single panelboard at a jobsite.

Burden hours: 61,415 jobsites x .08 hour = 4,913 hours
Cost: 4,913 hours x \$43.49 = \$213,666

- **§1926.403(i)(2)(iii); 1910.303(g)(2)(iii)**

Guarding of live parts (iii) Entrances to rooms and other guarded locations containing exposed live parts shall be marked with conspicuous warning signs forbidding unqualified persons to enter. The only burden for general industry is checking that the task has been done.

OSHA believes that it is usual and customary practice for employers to use the warning signs repeatedly. These signs can be used from one location to another which reduces the burden of constructing or ordering the sign. These reusable warning signs reduce cost of acquiring a new sign on the employer.

OSHA estimates that it will take 3 minutes (.05 hour) to post a warning sign. Only 5% of the jobsites will need to post new signs = 6,141,510 jobsites x .05 = 307,076

Burden hours: 307,076 jobsites x 1 sign x .05 hour = 15,354 hours
Cost: 15,354 hours x \$43.49 = \$667,745

- **§1926.403(j)(2)(ii); 1910.303(h)(2)(iii)(B)**

Installations accessible to unqualified persons (ii) Electrical installations that are open to unqualified persons shall be made with metal-enclosed equipment or shall be enclosed in a vault or in an area, access to which is controlled by a lock. If metal-enclosed equipment is installed so that the bottom of the enclosure is less than 8 feet above the floor, the door or cover shall be kept locked. Metal-enclosed switchgear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment shall be marked with appropriate caution signs. If equipment is exposed to physical damage from vehicular traffic, suitable guards shall be

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

provided to prevent such damage. Ventilating or similar openings will be deflected from energized parts.

The caution signs are posted at the time the equipment is installed and therefore this requirement is only done one time. The burden is taken in construction. The only burden for general industry is checking that the task has been done.

OSHA estimates that it will take 3 minutes (.05 hour) to post the signs. Only 10% of the jobsites will be affected (6,141,510 jobsites x .10 = 614,151).

Burden hours: 614,151 jobsites x 1 sign x .05 hour = 30,708 hours
Cost: 30,708 hours x \$43.49 = \$1,335,491

▪ **§ 1926.404(b)(1)(iii)--Assured equipment grounding conductor (AEGC) program.**

Regarding paragraph (b)(1)(iii)(A), OSHA estimates that 99% (6,080,095) of the construction sites elect to use ground-fault circuit interrupters and the remaining 1% (61,415) jobsites will use the AEGC program. OSHA estimates that it takes one hour (1.00 hr.) for an EEET to develop an AEGC program.⁴ Accordingly, the Agency estimates that the total annual burden hours and cost of developing the written AEGC programs are:

Burden hours: 61,415 jobsites x 1 hour = 61,415 hours
Cost: 61,415 hours x \$43.49 = \$2,670,938

▪ **§1926.404(d)(2)(ii); §1910.304(e)(2)(ii)**

(d)(2) Services over 600 volts nominal. (ii) Warning signs. Signs warning of high voltage shall be posted where other than qualified employees might come in contact with live parts. The only burden for general industry is checking that the task has been done.

OSHA believes that it is usual and customary practice for employers to use the warning signs repeatedly. These signs can be used from one location to another which reduces the cost of acquiring a new sign on the employer.

OSHA estimates that it will take three minutes (.05 hour) to post the warning sign. Only 3% of the jobsites (184,245) will need to post new signs.

Burden hours: 184,245 jobsites x 1 sign x .05 hour = 9,212 hours
Cost: 9,212 hours x \$43.49 = \$400,630

⁴ Construction trade associations contacted by OSHA state that they provide preprinted AEGC programs to employers to reduce the time required to develop an AEGC program to about one hour.

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

▪ **§1926.405(h); §1910.305(h)(8)**

Terminations (h): This paragraph applies to portable cables used at more than 600 volts nominal. Termination enclosures shall be suitably marked with a high voltage hazard warning, and terminations shall be accessible only to authorized and qualified employees.

The caution signs are posted at the time the equipment is installed. This requirement is done only one time and; therefore, the burden is taken in construction. The only burden for general industry is checking that the task has been done.

OSHA estimates that it will take 3 minutes (.05 hour) to post the new sign. And only 5% of the jobsites (307,076) will be affected.

Burden hours: 307,076 jobsites x 1 sign x .05 hour = 15,354 hours

Cost: 15,354 hours x \$43.49 = \$667,745

▪ **§1926.405(j)(4)(ii)(A); §1910.305(j)(4)(ii)-- Motors.**

Disconnecting means (j)(4)(ii): An individual disconnecting means shall be provided for each controller. A disconnecting means shall be located within sight of the controller location. However, a single disconnecting means may be located adjacent to a group of coordinated controllers mounted adjacent to each other on a multi-motor continuous process machine. The controller disconnecting means for motor branch circuits over 600 volts, nominal, may be out of sight of the controller, if the controller is marked with a warning label giving the location and identification of the disconnecting means that is to be locked in the open position.

The burden for this task applies solely to employers in the construction industry because the task occurs only during initial installation of controller-disconnecting means. The only burden for general industry is checking that the task has been done.

OSHA estimates that it takes five minutes (.08 hour) for an EEET to construct and post a warning label for each controller-disconnecting means, and that 2% of the new construction sites (122,830) use these warning labels on a single controller-disconnecting means.

Burden hours: 122,830 jobsites x .08 hour = 9,826 hours

Cost: 9,826 hours x \$43.49 = \$427,333

§1926.405(j)(5)(ii); §1910.305(j)(5)(ii)—Equipment for general use.

Transformer (j)(5)(ii): The operating voltage of exposed live parts of transformer installations shall be indicated by signs or visible markings on the equipment or structure. The only burden for general industry is checking that the task has been done.

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

The burden for this task applies solely to employers in the construction industry because the task occurs only during initial installation. OSHA estimates that it takes three minutes (.05 hour) for an EET to post a warning sign, and that 5% of the construction sites (307,076) need to use warning signs.

Burden hours: 307,076 jobsites x .05 hour = 15,354 hours

Cost: 15,354 hours x \$43.49 = \$667,745

▪ **§1926.405(j)(6)(ii)(A); §1910.305(j)(6)(ii)(C)—Equipment for general use.**

Capacitors (j)(6)(ii): Isolating or disconnecting switches (with no interrupting rating) shall be interlocked with the load interrupting device or shall be provided with prominently displayed caution signs to prevent switching load current; and only the burden for general industry is checking that the task has been done.

OSHA estimates that it will take 3 minutes (.05 hour) to post the signs. Only 2% of the jobsites (122,830) will be affected.

Burden hours: 122,830 jobsites x 1 sign x .05 hour = 6,142 hours

Cost: 6,142 hours x \$43.49 = \$267,116

▪ **§1926.408(a)(2)(iii); 1910.305(a)(5)(vii)—Special Systems**

Interrupting and isolating devices (a)(2)(iii) A means (for example, a fuseholder and fuse designed for the purpose) shall be provided to completely isolate equipment for inspection and repairs. Isolating means that are not designed to interrupt the load current of the circuit shall be either interlocked with an approved circuit interrupter or provided with a sign warning against opening them under load. The only burden for general industry is checking that the task has been done.

OSHA estimates that it will take 3 minutes (.05 hour) to post the warning sign. Only 1% of the jobsites will need to post new signs = 6,141,510 jobsites x .01 = 61,415

Burden hours: 61,415 jobsites x 1 sign .05 hour = 3,071 hours

Cost: 3,071 hours x \$43.49 = \$133,558

▪ **§1926.408(a)(3)(i); 1910.305(a)(6)(i)—Special Systems**

Mobile and portable equipment (a)(3)(i) A metallic enclosure shall be provided on the mobile machine for enclosing the terminals of the power cable. The enclosure shall include provisions for a solid connection for the grounding terminal to effectively ground the machine frame. The method of cable termination used shall prevent any strain or pull on the cable from stressing the

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

electrical connections. The enclosure shall have provision for locking so only authorized qualified persons may open it and shall be marked with a sign warning of the presence of energized parts.

OSHA believes that it is a usual and customary practice for employers to use the warning signs repeatedly. These signs can be used from one location to another which reduces the cost of acquiring a new sign on the employer.

OSHA estimates that it will take 3 minutes (.05 hour) to acquire and post the warning sign. Only 2% of the jobsites (122,830) will need to post new signs.

Burden hours: 122,830 jobsites x 1 sign x .05 hour = 6,142 hours
Cost: 6,142 hours x \$43.49 = \$267,116

▪ **§1926.408(a)(3)(ii); §1910.305(a)(6)(ii)— Special Systems**

Mobile and portable equipment--(a)(3)(ii): All energized switching and control parts shall be enclosed in effectively grounded metal cabinets or enclosures. Circuit breakers and protective equipment shall have the operating means projecting through the metal cabinet or enclosure so these units can be reset without locked doors being opened. Enclosures and metal cabinets shall be locked so that only authorized qualified persons have access and shall be marked with a sign warning of the presence of energized parts. Collector ring assemblies on revolving-type machines (shovels, draglines, etc.) shall be guarded.

OSHA believes that it is a usual and customary practice for employers to use the warning signs repeatedly. These reusable warning signs reduce the cost of a new sign on the employer.

OSHA estimates that it will take 3 minutes (.05 hour) to acquire and post the warning sign. Only 2% of the jobsites (122,830) will need to post new signs.

Burden hours: 122,830 jobsites x 1 sign x .05 hour = 6,142 hours
Cost: 6,142 hours x \$43.49 = \$267,116

▪ **§1926.416(a)(3)—General requirements**

Before work is begun, the employer shall ascertain by inquiry or direct observation, or by instruments, whether any part of an energized electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool, or machine into physical or electrical contact with the electric power circuit. The employer shall post and maintain proper warning signs where such a circuit exists. The employer shall advise employees of the location of such lines, the hazards involved, and the protective measures to be taken.

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

These warning signs and marks alert unqualified and unauthorized employees of the presence of electrical hazards, and notify electricians of the need to exercise caution and to take other measures to protect themselves when they are near electrical hazards.

OSHA estimates that it will take 3 minutes (.05 hour) to acquire and post the warning sign. Only 2% of the jobsites (122,830) will need to use new signs.

Burden hours: 122,830 jobsites x 1 sign x .05 hour = 6,142 hours
Cost: 6,142 hours x \$43.49 = \$267,116

▪ **§1926.417(a), (b), & (c)--Lockout and tagging of circuits**

Controls: (a) Controls that are to be deactivated during the course of work on energized or deenergized equipment or circuits shall be tagged.

Equipment and circuits: (b) Equipment or circuits that are deenergized shall be rendered inoperative and shall have tags attached at all points where such equipment or circuits can be energized.

Tags: (c) Tags shall be placed to identify plainly the equipment or circuits being worked on.

The Agency assumes that contractors tag one electrical hazard at each jobsite, and that an electrician spends one minute (.02 hour) tagging each hazard. OSHA estimates that only 5% of the jobsites (307,076) will need to use lockout and tagging.

Burden hours: 307,076 jobsites x 1 tag x .02 hour = 6,142 hours
Cost: 6,142 hours x \$43.49 = \$267,116

General Industry:

Following the industries covered by Subpart S outlined in the Final Economic Analysis (FEA) (72 FR 7136) of the final rule to revise 29 CFR part 1910, there are now 476,104 establishments and 4,756,507 employees in under NAICS codes 237 and 238 according to the 2015—2012 County Business Patterns. OSHA estimates that there are 51% of the establishments in general industry under state and local governments already covered under the latest National Electric Code (NEC) meeting the Standard and the other 49% employer are not governed by state and local governments. Based on the analysis of the remaining employers (i.e., those employers not governed by states and cities mandating the NEC), OSHA estimates that a total of 233,291 establishments and 2,330,688 employees affected by the Standards.

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

Based on the total number of affected establishments in general industry, only the new installations will be affected by this requirement. OSHA estimates that only 1% of the affected establishments will be new (i.e., 233,291 establishments x 1% = 2,333 new establishments).

- **§1910.303(f) -- Disconnecting means and circuits**

Paragraph (f)(5)(i)--Where circuit breakers or fuses are applied in compliance with the series combination ratings marked on the equipment by the manufacturer, the equipment enclosures shall be legibly marked in the field to indicate that the equipment has been applied with a series combination rating.

Paragraph (f)(5)(ii)--The marking required by paragraph (f)(5)(i) of this section shall be readily visible and shall state "Caution -- Series Combination System Rated_____Amperes. Identified Replacement Component Required."

Since this information is readily available to employers (i.e., provided on the equipment by the manufactures), OSHA estimates that an EET takes two minutes (.03 hour) to determine the series-combination ratings on the equipment and mark the ampere rating of the system in the designated space. In addition, the Agency estimates that 75% (3,750) of the new establishments need to mark the ampere ratings (2,333 new establishments x .75 = 1,750 new establishments), and that each new establishment needs to mark one equipment enclosure. Accordingly, the total yearly burden hour and cost estimates resulting from this requirement are:

Burden hours: 1,750 new installations x .03 hour = 53 hours
Cost: 53 hours x \$43.49 = \$2,305

- **§1910.304(b) -- Branch circuits**

Identification of multiwire branch circuits (b)(1)--Where more than one nominal voltage system exists in a building containing multiwire branch circuits, each ungrounded conductor of a multiwire branch circuit, where accessible, shall be identified by phase and system. The means of identification shall be permanently posted at each branch-circuit panelboard.

Since this information is readily available to employers (i.e., provided on the equipment by the manufacturer), OSHA estimates that it takes an EET approximately one minute (.02 hour) to mark the phase and system of each ungrounded conductor. The Agency also estimates that 75% (1,750) of the new establishments need to perform this task (i.e., mark one ungrounded conductor). Thus, the total annual burden hours and cost estimated for this requirement are:

Burden hours: 1,750 new establishments x .02 hour = 35 hours
Cost: 35 hours x \$43.49 = \$1,522

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)

1218-0130

May 2018

Ground-fault circuit interrupter protection for personnel (b)(3)(ii)(C)(1)--A written description of the program, including the specific procedures adopted by the employer, shall be available at the jobsite for inspection and copying by the Assistant Secretary of Labor and any affected employee;

Assuming that 99.97% of the establishments will use ground-fault circuit-interrupter protection and; therefore, are not eligible to use an AEGC program, then the Agency estimates that .03% (70) of the establishments will use a written AEGC program (233,291 establishments x .0003 = 70 establishments). Based on information obtained from construction-trade associations, employers are provided with preprinted AEGC programs that reduce program development time. OSHA estimates that an EEET will take one hour to develop a written AEGC program. The total burden hours and cost of the development of this program is:

Burden hours: 70 establishments x 1 hour = 70 hours

Cost: 70 hours x \$43.49 = \$3,044

This provision also requires employers to maintain the written AEGC programs at the jobsite, and to disclose the programs to OSHA compliance officers and affected employees. The Agency estimates that an EEET requires one minute (.02 hour) each year maintaining written program. Based on these estimates, the total time for an EEET to maintain the program is one minute (.02 hour). Therefore, the Agency estimates that the total annual burden hours and cost for these information collection requirements are:

Burden hours: 70 establishments x .02 hour to maintain = 1 hour

Cost: 1 hour x \$43.49 = \$43

Paragraph (b)(3)(ii)(C)(6)--Tests performed as required in paragraph (b)(3)(ii)(C) of this section shall be recorded. This test record shall identify each receptacle, cord set, and cord- and plug-connected equipment that passed the test and shall indicate the last date it was tested or the interval for which it was tested. This record shall be kept by means of logs, color coding, or other effective means and shall be maintained until replaced by a more current record. The record shall be made available on the jobsite for inspection by the Assistant Secretary and any affected employee.

OSHA believes that the 70 establishments with written AEGC programs test equipment and record the test results four times a year. It also estimates that an EEET takes three minutes (.05 hour) to perform each test and two minutes (.03 hour) to record the test results, for a total test-and record time of five minutes (.08 hour). These requirements result in total annual burden hour and cost estimates of:

Burden hours: 70 establishments x 4 tests/year x .08 hour = 22 hours

Cost: 22 hours x \$43.49 = \$957

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

Total burden hours for AEGC programs: 70 hours + 1 hours + 22 hours = 93 hours
Total cost: \$3,044 + \$43 + \$957 = \$4,044

- **§1910.306(c) -- Specific purpose equipment and installations.**

Paragraph (6)(i)--Where there is more than one driving machine in a machine room, the disconnecting means shall be numbered to correspond to the identifying number of the driving machine that they control.

In meeting this requirement, OSHA estimates that identifying and correctly numbering the disconnecting means takes an EEET eight minutes (.13 hour), and that 20% (467) of the new establishments must perform this task (2,333 new establishments x .20 = 467 new establishments). Accordingly, the estimated total annual burden hours and cost for this requirement are:

Burden hours: 467 new establishments x .13 hour = 61 hours
Cost: 61 hours x \$43.49 = \$2,653

Paragraph (6)(ii)--The disconnecting means shall be provided with a sign to identify the location of the supply-side overcurrent protective device.

OSHA assumes that all new establishments must post one sign to identify the location of the supply-side overcurrent protective device, and that an EEET performs this task in eight minutes (.13 hour). This requirement results in the following total annual burden hour and cost estimates:

Burden hours: 2,333 new establishments x .13 hour = 303 hours
Cost: 303 hours x \$43.49 = \$13,177

- **§1910.306(k) --- Carnivals, circuses, fairs, and similar events**

Paragraph (4)(iv)(B)--Single-pole separable connectors used in portable professional motion picture and television equipment may be interchangeable for ac or dc use or for different current ratings on the same premises only if they are listed for ac/dc use and marked to identify the system to which they are connected;

The Agency estimates that .5% (12) of the new establishments use interchangeable single-pole separable connectors in portable professional motion pictures and television equipment (2,333 new establishments x .005 = 12 new establishments), and that an EEET requires eight minutes (.13 hour) to list the connectors for ac/dc use and mark them to identify the system to which they are connected. Therefore, OSHA estimates the total annual burden hours and cost of this requirement are:

Burden hours: 12 new establishments x .13 hour = 2 hours

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

Cost: 2 hours x \$43.49 = \$87

▪ **§1910.307(b) -- Documentation**

Paragraph (b)--All areas designated as hazardous (classified) locations under the Class and Zone system and areas designated under the Class and Division system established after August 13, 2007 shall be properly documented. This documentation shall be available to those authorized to design, install, inspect, maintain, or operate electric equipment at the location.

This documentation consists of area-classification drawings that provide information for designers, installers, inspectors, and other personnel who must ensure that electrical equipment installed and maintained at hazardous (classified) locations meets the certification requirements specified elsewhere in the Standard. The Agency assumes that 40% (933) of the new establishments will require this documentation (2,333 new establishments x .4 = 933 new establishments) for one of these locations, and that an electrical certified engineer takes four hours to produce this documentation. Consequently, the estimated total annual burden hours and cost for this documentation are:

Burden hours: 933 new establishments x 4 hours = 3,732 hours

Cost: 3,732 hours x \$68.12 = \$254,224

▪ **§1910.308(b) -- Emergency power system**

Paragraph (b)(3)(i)--A sign shall be placed at the service entrance equipment indicating the type and location of on-site emergency power sources. However, a sign is not required for individual unit equipment.

According to OSHA's estimates, an engineering manager takes one minute (.02 hour) to brief an EEET about the required task, and five minutes (.08 hour) for the EEET to place the sign. The Agency assumes that 30% (700) of the new establishments must acquire and place one of these signs (2,333 new establishments x .3 = 700 new establishments). The resulting annual total burden hour and cost estimates are:

Burden hours: 700 new establishments x .02 hour = 14 hours

700 new establishments x .08 hour = 56 hours

Total burden hours: 70 hours

Cost: 14 hours x \$99.38 = \$1,391

56 hours x \$43.49 = \$2,435

Total cost: \$3,826

Paragraph (b)(3)(ii)--Where the grounded circuit conductor connected to the emergency source is connected to a grounding electrode conductor at a location remote from the emergency source,

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

there shall be a sign at the grounding location that shall identify all emergency and normal sources connected at that location.

To meet this requirement, the Agency estimates that an engineering manager takes one minute (.02 hour) to brief an EET regarding the required task, and five minutes (.08 hour) for the EET to place the sign. OSHA believes that 2% (119) of the new establishments must acquire and place one of these signs (2,333 new establishments x .02 = 47 new establishments). The Agency estimates the annual total burden hours and cost of this requirement to be:

Burden hours: 47 new establishments x .02 hour = 1 hours
47 new establishments x .08 hour = 4 hours

Total burden hours: 5 hours

Cost: 1 hour x \$99.38 = \$99
4 hours x \$43.49 = \$174

Total cost: \$273

▪ **1910.333--Selection and use of work practices.**

Procedures. Paragraph 1910.333(b)(2)(i) requires employers to maintain a written copy of the lockout and tagging procedure outlined in paragraph (b)(2) of this standard, and to make it available for inspection by employees and by the Assistant Secretary of Labor and his/her authorized representatives. The written procedures may be a copy of paragraph (b) of this standard.

OSHA estimates that it will take 15 minutes (.25 hours) to record and maintain a written copy of the procedure outlined in requirement. Only 85% of the establishment will need a written copy of the procedure to use for tagging 2,333 establishments x .85 =1,983).

Burden hours: 1,983 new establishments x 1 procedure x .25 hour = 496 hours

Cost: 496 hours x \$43.49 = \$21,571

Application of locks and tags. Paragraph 1910.333(b)(2)(iii)(B) requires employers to ensure that each tag used contains a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag.

These tags alert unqualified and unauthorized employees of the presence of electrical hazards, and notify other employee in the vicinity of the need to exercise caution when they are near electrical hazards.

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

The Agency assumes that each establishment will use one tag for each system and that an electrician spends three minutes (.05 hour) tagging each disconnect. OSHA estimates that only 85% of the establishment (1,983) will need to use lockout and tagging (2,333 establishments x 0.85 = 1,983)

Burden hours: 1,983 new establishments x 1 tags x .05 hour = 99 hours
Cost: 99 hours x \$43.49 = \$4,306

Paragraph 1910.333(b)(2)(v)(B) requires employers to warn employees exposed to the hazards associated with reenergizing the circuit or equipment to stay clear of the circuits and equipment.

These warning signs and marks alert unqualified and unauthorized employees of the presence of electrical hazards, and notify electricians of the need to exercise caution and to take other measures to protect themselves when they are near electrical hazards.

OSHA estimates that it will take five minutes (.08 hour) to acquire and post the warning sign. (2,333 establishments x 9 = 20,997 jobsites) Only 15% of the jobsites (20,997 jobsites x .15 = 3,150) will need to use new signs.

Burden hours: 3,150 x 1 sign x .08 hour = 252 hours
Cost: 252 hours x \$43.49 = \$10,959

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART
K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

**TABLE 2--Electrical Standards for Construction and General Industry:
Estimated Summary of Burden Hours and Cost per Response.**

	Information Collection Requirements	Number of Respondents	Frequency per response	Total Responses	Time per response	Requested Burden Hours	Wage Rate	Cost Under Item 12
		a	b	c = a x b	d	e = c x d	f	g = e x f
Construction Standards – 1926								
1	§§1926.403(h); 1910.303(f)--Identification of disconnecting means and circuits.	6,141,510	0.01	61,415	5/60 hours	4,913	\$43.49	\$213,666
2	§§1926.403(i)(2)(iii); 1910.303 (g)(2)(iii)--600 Volts, nominal, or less.-- Guarding of live parts.	6,141,510	0.05	307,076*	3/60 hours	15,354	\$43.49	\$293,806
3	§§1926.403(j)(2)(ii); 1910.303 (h)(2)(iii)(B)-- Over 600 Volts, nominal.-- Installations accessible to unqualified persons.	6,141,510	0.10	614,151*	3/60 Hours	30,708	\$43.49	\$1,335,491
4	§1926.404(b)(1)(iii)-- Assured equipment grounding conductor (AEGC) program.	6,141,510	0.01	61,415	1 hour	61,415	\$43.49	\$2,670,938
5	§§1926.404 (d)(2)(ii); 1910.304(e)(2)(ii)--Services over 600 volts, nominal-- Warning signs.	6,141,510	0.03	184,245*	3/60 hours	9,212	\$43.49	\$400,630

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY
(29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

	Information Collection Requirements	Number of Respondents	Frequency per response	Total Responses	Time per response	Requested Burden Hours	Wage Rate	Cost Under Item 12
		a	b	c = a x b	d	e = c x d	f	g = e x f
6	§§1926.405(h); 1910.305(h)(8)--Portable cables over 600 volts, nominal.	6,141,510	0.05	307,076*	3/60 hours	15,354	\$43.49	\$667,745*
7	§§1926.405(j)(4)(ii)(A); 1910.305(j)(4)(ii)--Disconnecting means for motor-branch circuits.	6,141,510	0.02	122,830**	5/60 hours	9,826	\$43.49	\$427,333**
8	§§1926.405(j)(5)(ii); 1910.305(j)(5)(ii)-Transformer operating voltages.	6,141,510	0.05	307,076*	3/60 hours	15,354	\$43.49	\$667,745*
9	§§1926.405(j)(6)(ii)(A); 1910.305(j)(6)(ii)(C)--Equipment for general use--Capacitors.	6,141,510	0.02	122,830*	3/60 Hours	6,142	\$43.49	\$267,116*
10	§§1926.408(a)(2)(iii); 1910.308(a)(2)(iii)--Equipment isolating means.	6,141,510	0.01	61,415*	3/60 hours	3,071	\$43.49	\$133,558*
11	§§1926.408(a)(3)(i); 1910.308(a)(3)(i)-- Power cable connections to mobile machines.	6,141,510	0.02	122,830*	3/60 hours	6,142	\$43.49	\$267,116*
12	§§1926.408(a)(3)(ii);	6,141,510	0.02	122,830*	3/60	6,142		

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY
(29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

	Information Collection Requirements	Number of Respondents	Frequency per response	Total Responses	Time per response	Requested Burden Hours	Wage Rate	Cost Under Item 12
		a	b	c = a x b	d	e = c x d	f	g = e x f
	1910.308(a)(3)(ii)--Mobile and portable equipment.				hours		\$43.49	\$267,116*
13	§§1926.416(a)(3)--General requirements--Protection of employees.	6,141,510	0.02	122,830*	3/60 hours	6,142	\$43.49	\$267,116*
14	§1926.417(a), (b), and (c)--Lockout and tagging of circuits.	6,141,510	0.05	307,076	1/60 hours	6,142	\$43.49	\$267,116
General Industry – 1910								
15	§1910.303(f)(5)(i)&(ii)--Disconnecting means and circuits.	2,333	0.75	1,750	2/60 hours	53	\$43.49	\$2,305
16	§1910.304(b)(1)--Branch circuits-- Identification of multiwire branch circuits.	2,333	0.75	1,750**	1/60 hours	35	\$43.49	\$1,522**
17	§1910.304 (b)(3)(ii)(C)(1) &(6)-- Ground-fault circuit interrupter protection for personnel.	2,333	0.18	420	66/60 hour	93	\$43.49	\$4,044
18	§1910.306(c)(6)(i)--Specific purpose equipment and installations-- Identification and signs.	2,333	0.20	467*	8/60 hours	61	\$43.49	\$2,653*

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY
(29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

	Information Collection Requirements	Number of Respondents	Frequency per response	Total Responses	Time per response	Requested Burden Hours	Wage Rate	Cost Under Item 12
		a	b	c = a x b	d	e = c x d	f	g = e x f
19	§1910.306(c)(6)(ii)-- Specific purpose equipment and installations-- Identification and signs.	2,333	1	2,333*	8/60 hours	303	\$43.49	\$13,177*
20	§1910.306(k)(4)(iv)(B)-- Carnivals, circuses, fairs, and similar events--Portable distribution and termination boxes.	2,333	0.005	12	8/60 hours	2	\$43.49	\$87
21	§1910.307(b)-- Documentation.	2,333	0.3999	933	4 hours	3,732	\$68.12	\$254,224
22	§1910.308 (b)(3)(i)-- Emergency power system.	2,333	0.60009	1,400	6/60 hours	70	\$142.87	\$3,826
23	§1910.308(b)(3)(ii)-- Emergency power system.	2,333	0.04029	94	6/60 hours	5	\$142.87	\$273
24	1910.333(b)(2)(i)--Selection and use of work practices-- Procedures.	2,333	0.84998	1,983	15/60 hours	496	\$43.49	\$21,571
25	1910.333(b)(2)(iii)(B)-- Selection and use of work practices--Application of locks and tags.	2,333	0.84998	1,983	3/60 hours	99	\$43.49	\$4,306
26	1910.333(b)(2)(v)(B)-- Selection and use of work	2,333	1.35019	3,150*	5/60 hours	252	\$43.49	\$10,959*

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

	Information Collection Requirements	Number of Respondents	Frequency per response	Total Responses	Time per response	Requested Burden Hours	Wage Rate	Cost Under Item 12
		a	b	c = a x b	d	e = c x d	f	g = e x f
	practices--Application of locks and tags.							
27	TOTAL			2,841,370		194,976		\$8,839,378

*All employers who need to purchase signs.

**All employers who need to purchase labels.

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY
(29 CFR PART 1910, SUBPART S)**

1218-0130

May 2018

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

13. Provide an estimate of the total annual cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Items 12 and 14.)

- The cost estimate should be split into two components: (a) a total capital and start-up cost component annualized over its expected useful life; and (b) a total operation and maintenance and purchase of service component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information. Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.
- If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collection services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondent (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.
- Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.

Capital Cost Determinations

As noted in Item 12 above, OSHA estimated that §1910.304(b)(1) requires 75% (1,750) of the new establishments to label the phase and system of one ungrounded conductor a year and §1926.405(j)(4)(ii) requires warning labels (122,830) for the disconnecting means of motor branch circuits. Therefore, these establishments must purchase a total of 121,973 labels to complete the task. The Agency assumes that each label costs \$4.25.⁵ Accordingly, the total cost each year to these employers is:

$$\text{Cost: } 124,580 \text{ labels} \times \$4.25 = \$529,465$$

As noted in Item 12 above, OSHA estimated that new establishments will need to acquire caution or warning signs to guard workers from coming in contact with energized parts. Therefore, these new establishments must purchase a total of 1,680,950 signs to complete this

⁵ <http://www.mysafetysign.com/Safety-Signs/High-Voltage-Warning-Signs/High-Voltage-Sign/SAF-SKU-S-2210.aspx?themeid=8310>

**ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018**

task. The Agency assumes that each sign costs \$10.95.⁶ Accordingly, the total cost in the first year to these employers is:

$$\text{Cost: } 2,278,309 \text{ signs} \times \$10.95 = \$24,947,484$$

Total cost annualized over a five-year period to the employer is: $(\$529,465 + \$24,947,484) / 5 \text{ years} = \$25,476,949 / 5 = \$5,095,390.$

This increase in cost is due to the purchase of warning and caution signs.

14. Provide estimates of the annualized cost to the Federal Government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), any other expense that would not have been incurred without this collection of information. Agencies also may aggregate cost estimates from Items 12, 13, and 14 into a single table.

There are no costs to the Federal Government.

15. Explain the reasons for any program changes or adjustments reported.

OSHA is requesting a decrease adjustment to the burden hours from 220,789 hours to 194,976, a total decrease of 25,813 burden hours for the Electrical Standards for Construction and General Industry. This reflects an update of the industry profile information, and by extension, the estimated number of affected establishments has decreased. The Agency is increasing the cost of the purchase of caution and warning signs from \$18,406,403 to \$25,476,949, a difference of \$7,070,546. The total cost annualized over a five-year period to the employer is \$5,095,390.

Table 3 – Current and Request Burden Hours

	Information Collection Requirements	Current Burden Hours	Requested Burden Hours	Adjustment
Construction Standards – 1926				
1	§§1926.403(h); 1910.303(f)-- Identification of disconnecting means and circuits.	4,701	4,913	212
2	§§1926.403(i)(2)(iii); 1910.303 (g)(2)(iii)--600 Volts, nominal, or less.-- Guarding of live parts.	14,690	15,354	664
3	§§1926.403(j)(2)(ii); 1910.303 (h)(2)(iii)(B)--Over 600 Volts, nominal.--	29,381	30,708	1,327

⁶ <http://www.mysafetysign.com/Safety-Signs/High-Voltage-Warning-Signs/High-Voltage-Sign/SAF-SKU-S-2210.aspx?themeid=8310>

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)

1218-0130

May 2018

	Information Collection Requirements	Current Burden Hours	Requested Burden Hours	Adjustment
	Installations accessible to unqualified persons.			
4	§1926.404(b)(1)(iii)--Assured equipment grounding conductor (AEGC) program.	78,872	61,415	-17,457
5	§§1926.404 (d)(2)(ii); 1910.304(e)(2) (ii)--Services over 600 volts, nominal--Warning signs.	8,814	9,212	398
6	§§1926.405(h); 1910.305(h)(8)--Portable cables over 600 volts, nominal.	14,690	15,354	664
7	§§1926.405(j)(4)(ii)(A); 1910.305(j)(4) (ii)--Disconnecting means for motor-branch circuits.	9,402	9,826	424
8	§§1926.405(j)(5)(ii); 1910.305(j)(5)(i)-Transformer operating voltages.	14,690	15,354	664
9	§§1926.405(j)(6)(ii)(A); 1910.305(j)(6) (ii)(C)--Equipment for general use--Capacitors.	5,876	6,142	-5,876
10	§§1926.408(a)(2)(iii); 1910.308(a)(2) (iii)--Equipment isolating means.	2,938	3,071	3,204
11	§§1926.408(a)(3)(i); 1910.308(a)(3) (i)-- Power cable connections to mobile machines.	5,876	6,142	-2,805
12	§§1926.408(a)(3)(ii); 1910.308(a)(3) (ii)--Mobile and portable equipment.	5,876	6,142	266
13	§§1926.416(a)(3)--General requirements--Protection of employees.	5,876	6,142	266
14	§1926.417(a), (b), and (c)--Lockout and tagging of circuits.	5,876	6,142	266
General Industry Electrical Standard – 1910				
15	§1910.303(f)(5)(i)&(ii)--Disconnecting means and circuits.	134	53	-81
16	§1910.304(b)(1)--Branch circuits--Identification of multiwire branch	89	35	-54

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)

1218-0130

May 2018

	Information Collection Requirements	Current Burden Hours	Requested Burden Hours	Adjustment
	circuits.			
17	§1910.304 (b)(3)(ii)(C)(1) &(6)--Ground-fault circuit interrupter protection for personnel.	239	93	-146
18	§1910.306(c)(6)(i)--Specific purpose equipment and installations--Identification and signs.	154	61	-93
19	§1910.306(c)(6)(ii)--Specific purpose equipment and installations--Identification and signs.	771	303	-468
20	§1910.306(k)(4)(iv)(B)--Carnivals, circuses, fairs, and similar events--Portable distribution and termination boxes.	4	2	-2
21	§1910.307(b)--Documentation.	9,496	3,732	-5,764
22	§1910.308 (b)(3)(i)--Emergency power system.	178	70	-108
23	§1910.308(b)(3)(ii)--Emergency power system.	12	5	-7
24	1910.333(b)(2)(i)--Selection and use of work practices--Procedures.	1,261	496	-765
25	1910.333(b)(2)(iii)(B)--Selection and use of work practices--Application of locks and tags.	252	99	-153
26	1910.333(b)(2)(v)(B)--Selection and use of work practices--Application of locks and tags.	641	252	-389
27	TOTAL	220,789	194,976	-25,813

16. For collections of information whose results will be published, outline plans for tabulation, and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the

ELECTRICAL STANDARDS FOR CONSTRUCTION (29 CFR PART 1926, SUBPART K) AND GENERAL INDUSTRY (29 CFR PART 1910, SUBPART S)
1218-0130
May 2018

entire project, including beginning and ending dates of the collection information, completion of report, publication dates, and other actions.

OSHA will not publish the information collected under the Standards.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be appropriate.

OSHA lists current valid control numbers in §§1910.8, 1915.8, 1917.4, 1918.4, and 1926.5 and publishes the expiration date in the Federal Register notice announcing OMB approval of the information collection requirement. (see 5 CFR 1320.3(f)(3)). OSHA believes that this is the most appropriate and accurate mechanism to inform interested parties of these expiration dates.

18. Explain each exception to the certification statement.

OSHA is not seeking an exception to the certification statement.

B. COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

The supporting statement does not contain any collection of information requirements that employ statistical methods.