



## Report Documentation Page

<b>Report Date</b> 00001998	<b>Report Type</b> N/A	<b>Dates Covered (from... to)</b> -
<b>Title and Subtitle</b> Ground-Fault Protection on Construction Sites	<b>Contract Number</b>	
	<b>Grant Number</b>	
	<b>Program Element Number</b>	
<b>Author(s)</b>	<b>Project Number</b>	
	<b>Task Number</b>	
	<b>Work Unit Number</b>	
<b>Performing Organization Name(s) and Address(es)</b> U.S. Department of Labor Occupational Safety & Health Administration 200 Constitution Avenue Washington, DC 20210	<b>Performing Organization Report Number</b> OSHA 3007	
<b>Sponsoring/Monitoring Agency Name(s) and Address(es)</b>	<b>Sponsor/Monitor's Acronym(s)</b>	
	<b>Sponsor/Monitor's Report Number(s)</b>	
<b>Distribution/Availability Statement</b> Approved for public release, distribution unlimited		
<b>Supplementary Notes</b>		
<b>Abstract</b> <p>With the wide use of portable tools on construction sites, the use of flexible cords often becomes necessary. Hazards are created when cords, cord connectors, receptacles, and cord and plug-connected equipment are improperly used and maintained. Generally, flexible cords are more vulnerable to damage than is fixed wiring. Flexible cords must be connected to devices and to fittings so as to prevent tension at joints and terminal screws. Because a cord is exposed, flexible and unsecured joints and terminals become more vulnerable. Flexible cord conductors are finely stranded for flexibility, but the strands of one conductor may loosen from under terminal screws and touch another conductor, especially if the cord is subjected to stress or strain. A flexible cord may be damaged by activities on the job, by door or window edges, by staples or fastenings, by abrasion from adjacent materials, or simply by aging. If the electrical conductors become exposed, there is a danger of shocks, burns, or fire. A frequent hazard on a construction site is a cord assembly with improperly connected terminals.</p>		
<b>Subject Terms</b>		
<b>Report Classification</b> unclassified	<b>Classification of this page</b> unclassified	

<b>Classification of Abstract</b> unclassified	<b>Limitation of Abstract</b> UU
<b>Number of Pages</b> 31	

# Ground-Fault Protection on Construction Sites



U.S. Department of Labor  
Occupational Safety and Health Administration

OSHA 3007  
1998 (Revised)



This informational booklet is intended to provide a generic, non-exhaustive overview of a particular standards-related topic. This publication does not itself alter or determine compliance responsibilities, which are set forth in OSHA standards themselves and the *Occupational Safety and Health Act*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current and administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the Courts

Material contained in this publication is in the public domain and may be reproduced, fully or partially, without permission of the Federal Government. Source credit is requested but not required.

---

This information will be made available to sensory impaired individuals upon request.

Voice phone: (202) 219-8615;  
TDD message referral phone:  
1-800-326-2577

# Ground-Fault Protection on Construction Sites

---



U.S. Department of Labor  
Alexis M. Herman, Secretary

Occupational Safety and Health Administration  
Charles N. Jeffress, Assistant Secretary

OSHA 3007  
1998 (Revised)



	Page
<b>Why Does OSHA Have an Electrical Standard for Construction?</b> .....	1
<b>What is a GFCI?</b> .....	3
<b>What are Some Other Ways to Prevent Electrical Injury?</b> .....	4
<b>How Can Employers Protect Their Workers?</b> .....	6
<b>What is the Assured Equipment Grounding Conductor Program?</b> .....	7
<b>What Other Help Can OSHA Provide?</b> .....	8
Safety and Health Program Management Guidelines.....	8
State Programs .....	8
Consultation Services .....	9
Voluntary Protection Programs .....	9
Training and Education.....	10
Electronic Information.....	10
Emergencies .....	11
<b>Equipment Grounding Conductor Program</b> .....	12
<b>Appendix—29 CFR Part 1926 Safety and Health Regulations for Construction Subpart K (partial)</b> .....	13
<b>Related OSHA Publications</b> .....	15
<b>States with Approved Plans</b> .....	16



	Page
<b>OSHA Consultation Project Directory .....</b>	19
<b>OSHA Area Offices .....</b>	21
<b>OSHA Regional Offices .....</b>	23

With the wide use of portable tools on construction sites, the use of flexible cords often becomes necessary. Hazards are created when cords, cord connectors, receptacles, and cord- and plug-connected equipment are improperly used and maintained. Generally, flexible cords are more vulnerable to damage than is fixed wiring. Flexible cords must be connected to devices and to fittings so as to prevent tension at joints and terminal screws. Because a cord is exposed, flexible and unsecured joints and terminals become more vulnerable. Flexible cord conductors are finely stranded for flexibility, but the strands of one conductor may loosen from under terminal screws and touch another conductor, especially if the cord is subjected to stress or strain.

A flexible cord may be damaged by activities on the job, by door or window edges, by staples or fastenings, by abrasion from adjacent materials, or simply by aging. If the electrical conductors become exposed, there is a danger of shocks, burns, or fire. A frequent hazard on a construction site is a cord assembly with improperly connected terminals.

Also, when a cord connector is wet, hazardous leakage can occur to the equipment grounding conductor and to humans who pick up that connector if they also provide a path to ground. Such leakage is not limited to the face of the connector but also develops at any wet portion of it.

When the leakage current of tools is below 1 ampere, and the grounding conductor has a low resistance, no shock should be perceived. However, should the resistance of the equipment grounding conductor increase, the current through the body also will increase. Thus, if the resistance of the equipment grounding conductor is significantly greater than 1 ohm, tools with even small leakages become hazardous.

The Occupational Safety and Health Administration's (OSHA) electrical standard for construction, title 29 *Code of Federal Regulations Part 1926, Subpart K*, contains the requirements for ground fault circuit interrupters (GFCIs) and for assured equipment grounding conductor programs which are included in the Appendix of this booklet. These requirements will help reduce the number of injuries and accidents from electrical hazards. Work disruptions should be minor, and the necessary inspections and maintenance should require little time.

This booklet is intended to help employers and employees responsible for electrical equipment provide protection against 120-volt electrical hazards on the construction site—the most common being ground fault electrical shock—through the use of GFCIs or through the assured equipment grounding conductor program.

A GFCI is a fast-acting circuit breaker that senses small imbalances in the circuit caused by current leakage to ground and, in a fraction of a second, shuts off the electricity. The GFCI continually matches the amount of current going to an electrical device against the amount of current returning from the device along the electrical path. Whenever the amount “going” differs from the amount “returning” by approximately 5 milliamps, the GFCI interrupts the electric power within as little as 1/40 of a second. (See diagram.)

The GFCI, however, does not protect from line-to-line contact hazards—such as a worker holding two “hot” wires or a hot and a neutral wire in each hand. It protects against the most common form of electrical shock hazard—the ground fault, and protects against fires, overheating, and destruction of insulation on wiring.

GFCIs can be used successfully to reduce electrical hazards on construction sites. Tripping of GFCIs—interrupting current flow—is sometimes caused by wet connectors and tools. It is good practice to limit exposure of connectors and tools to excessive moisture by using watertight or sealable connectors.

Providing more GFCIs or shorter circuits can prevent tripping caused by the cumulative leakage from several tools or by leakages from extremely long circuits.

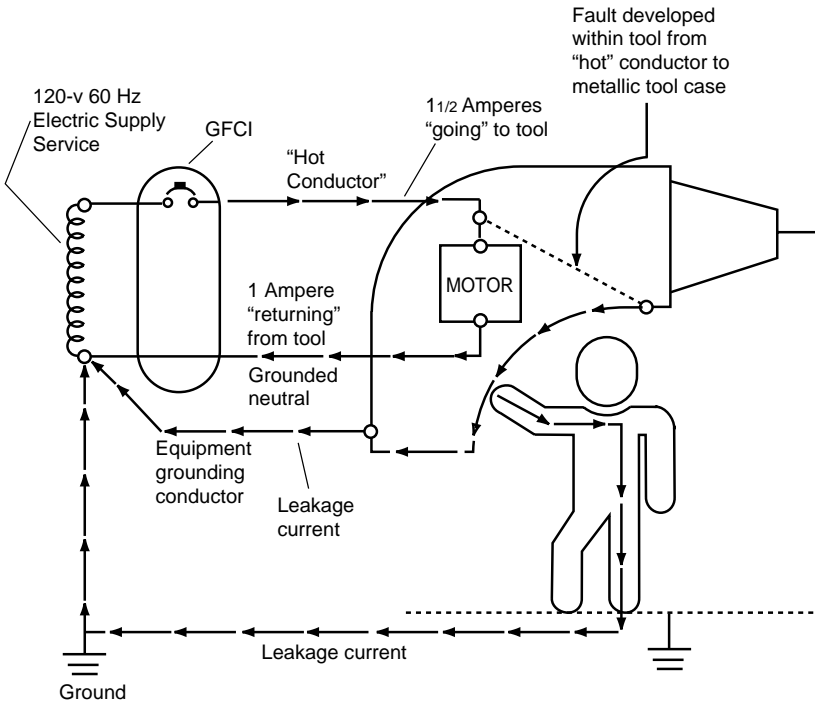
Insulation and grounding are two recognized means of preventing injury during electrical equipment operation. Conductor insulation may be provided by placing nonconductive material such as plastic around the conductor. Grounding may be achieved through the use of a direct connection to a known ground such as a metal, cold water pipe.

Consider, for example, the metal housing or enclosure around a motor or the metal box in which electrical switches, circuit breakers, and controls are placed. Such enclosures protect the equipment from dirt and moisture and prevent accidental contact with exposed wiring, however, there is a hazard associated with housings and enclosures. A malfunction within the equipment—such as deteriorated insulation—may create an electrical shock hazard. Many metal enclosures are connected to a ground to eliminate the hazard.

If a “hot” wire contacts a grounded enclosure, a ground fault results which normally will trip a circuit breaker or blow a fuse. Metal enclosures and containers are usually grounded by connecting them with a wire going to ground. This wire is called an equipment grounding conductor. Most portable electric tools and appliances are grounded by this means. There is one disadvantage to grounding: a break in the grounding system may occur without the user’s knowledge.

Insulation may be damaged by hard usage on the job or simply by aging. If this damage causes the conductors to become exposed, the hazards of shocks, burns, and fire will exist. Double insulation may be used as additional protection on the live parts of a tool, but double insulation does not provide protection against defective cords and plugs or against heavy moisture conditions.

## Ground-Fault Circuit Interrupter



GFCI monitors the difference in current flowing into the "hot" and out to the grounded neutral conductors. The difference ( $\frac{1}{2}$  ampere in this case) will flow back through any available path, such as the equipment grounding conductor, and through a person holding the tool, if the person is in contact with a grounded object.

OSHA ground-fault protection rules and regulations have been determined necessary and appropriate for employee safety and health. Therefore, it is the employer's responsibility to provide either: (a) GFCIs on construction sites for receptacle outlets in use and not part of the permanent wiring of the building or structure; or (b) a scheduled and recorded assured equipment grounding conductor program on construction sites, covering all cord sets, receptacles which are not part of the permanent wiring of the building or structure, and equipment connected by cord and plug which are available for use or used by employees.

The employer is required to provide approved GFCIs for all 120-volt, single-phase, 15- and 20-ampere receptacle outlets on construction sites that are not a part of the permanent wiring of the building or structure and that are in use by employees. If a receptacle or receptacles are installed as part of the permanent wiring of the building or structure and they are used for temporary electric power, GFCI protection shall be provided. Receptacles on the ends of extension cords are not part of the permanent wiring and, therefore the cord's receptacle, must be of the GFCI type whether or not the extension cord is plugged into permanent wiring. These GFCIs monitor the current-to-the-load for leakage to ground.

When this leakage exceeds 5 milliAmps plus or minus 1 milliAmp, the GFCI interrupts the current. They are rated to trip quickly enough to prevent electrocution. This protection is required in addition to, not as a substitute for, the grounding requirements of OSHA safety and health rules and regulations, 29 CFR 1926. The requirements which the employer must meet, if he or chooses the GFCI option, are stated in 29 CFR 1926.404(b)(1)(ii). (See appendix.)

The assured equipment grounding conductor program covers all cord sets, receptacles which are not a part of the permanent wiring of the building or structure, and equipment connected by cord and plug which are available for use or used by employees. The requirements which the program must meet are stated in 29 CFR 1926.404(b)(1)(iii), but employers may provide additional tests or procedures. (See Appendix.) OSHA requires that a written description of the employer's assured equipment grounding conductor program, including the specific procedures adopted, be kept at the jobsite. This program should outline the employer's specific procedures for the required equipment inspections, tests, and test schedule. The required tests must be recorded, and the record maintained until replaced by a more current record. The written program description and the recorded tests must be made available, at the jobsite, to OSHA and to any affected employee upon request. The employer is required to designate one or more **competent persons** to implement the program.

Electrical equipment noted in the assured equipment grounding conductor program must be visually inspected for damage or defects before each day's use. Any damaged or defective equipment must not be used by the employee until repaired.

Two tests are required by OSHA. One is a continuity test to ensure that the equipment grounding conductor is electrically continuous. It must be performed on all cord sets, receptacles which are not part of the permanent wiring of the building or structure, and on cord- and plug-connected equipment which is required to be grounded. This test may be performed using a simple continuity tester, such as a lamp and battery, a bell and battery, an ohmmeter, or a receptacle tester.

The other test must be performed on receptacles and plugs to ensure that the equipment grounding conductor is connected to its proper terminal. This test can be performed with the same equipment used in the first test.

These tests are required before first use, after any repairs, after damage is suspected to have occurred, and at 3-month intervals. Cord sets and receptacles which are essentially fixed and not exposed to damage must be tested at regular intervals not to exceed 6 months. Any equipment which fails to pass the required tests shall not be made available or used by employees.

## **Safety and Health Program Management Guidelines**

Effective management of worker safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. To assist employers and employees in developing effective safety and health programs, OSHA published recommended Safety and Health Program Management Guidelines (*Federal Register* 54 (18): 3908-3916, January 26, 1988). These voluntary guidelines apply to all places of employment covered by OSHA.

The guidelines identify four general elements that are critical to the development of a successful safety and health management program:

- Management commitment and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

The guidelines recommend specific actions under each of these general elements to achieve an effective safety and health program. A single free copy of the guidelines can be obtained from the U.S. Department of Labor OSHA/OICA Publications, P.O. Box 37535, Washington, DC 20013-7535, by sending a self-addressed mailing label with your request.

---

## **State Programs**

The *Occupational Safety and Health Act of 1970* encourages states to develop and operate their own job safety and health plans. States with plans approved under section 18(b) of the OSH Act must adopt standards and enforce requirements that are at least as effective as federal requirements. There are currently 25 state plan states: 23 of these states administer plans covering both private and public (state and local government) employees; the other states, Connecticut and New York, cover public sector employees only. OSHA-approved plan states must adopt safety and health standards comparable, but not necessarily identical to, the federal one within 6 months of a federal standard's promulgation. Until a state standard is promulgated,

OSHA provides interim enforcement assistance, as appropriate, in those states. A listing of approved state plan states appears at the end of this publication.

---

## **Consultation Services**

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state government agencies or universities employing professional safety consultants and health consultants. Comprehensive assistance includes an appraisal of all mechanical, physical work practice, and environmental hazards of the workplace and all aspects of the employer's present job safety and health program.

The program is separate from OSHA's inspection efforts. No penalties are proposed or citations issued for any safety or health problems identified by the consultant. The service is confidential.

For more information concerning consultation assistance, see the list of consultation projects at the end of this publication.

---

## **Voluntary Protection Programs**

Voluntary Protection Programs (VPPs) and onsite consultation services, when coupled with an effective enforcement program, expand worker protection to help meet the goals of the OSH Act. The three VPPs—Star, Merit, and Demonstration—are designed to recognize outstanding achievement by companies that have successfully incorporated comprehensive safety and health programs into their total management system. They motivate others to achieve excellent safety and health results in the same outstanding way, and they establish a cooperative relationship among employers, employees, and OSHA.

For additional information on VPPs and how to apply, contact the OSHA Area or Regional Office listed at the end of this publication.

## Training and Education

OSHA's area offices offer a variety of informational services, such as publications, audiovisual aids, technical advice, and speakers for special engagements.

OSHA's Training Institute in Des Plaines, IL., provides basic and advanced courses in safety and health for federal and state compliance officers, state consultants, federal agency personnel, and private sector employers, employees, and their representatives.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually, with a 1-year renewal possible. Grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on grants, training, and education, contact the OSHA Training Institute, Office of Training and Education, 1555 Times Drive, Des Plaines, IL 60018, (847) 297-4810, Fax (847) 297-4874. For further information on any OSHA program contact your nearest OSHA area or regional office listed at the end of this publication.

The OSHA Training Institute also has established OSHA Training Education Centers to address the increased demand for its courses from the private sector and from other Federal agencies. These centers are nonprofit colleges, universities, and other organizations that have been selected after a competition for participation in the program.

---

## Electronic Information

Internet—OSHA standards, interpretations, directives, technical advisors, compliance assistance, and additional information are now on the World Wide Web at <http://www.osha.gov/>.

CD-ROM—A wide variety of OSHA materials, including standards, interpretations, directives, and more, can be purchased on CD-ROM from the U.S. Government Printing Office. To order, write to the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 or telephone (202) 512-1800. Specify OSHA Regulations, Documents, and Technical Information on CD-ROM

(ORDT), GPO Order No. S/N 729-013-00000-5. The price is \$43 per year (\$53.75 foreign); \$17 per single copy (\$21.25 foreign).

---

## **Emergencies**

For life-threatening situations only, call (800) 321-OSHA. Complaints will go immediately to the nearest OSHA area or state office for help.

For further information on any OSHA program, contact your nearest OSHA area or regional office listed at the end of this publication.

**Employer Must Provide:**

- Written Description of Program
- Competent Person to Implement the Program
- Inspection and Testing
- Records of Test Results

**Inspections**

- **Frequency of Inspections:**
  - Before each day's use.
- **Visual inspection of the following equipment is required:**
  - Cord sets.
  - Cap, plug and receptacle of cord sets.
  - Equipment connected by cord and plug.
- **Exceptions:**
  - Receptacles and cord sets that are fixed and not exposed to damaged.

**Tests**

- **Frequency of tests:**
  - Before first use.
  - After repair and before placing back in service.
  - Before use after suspected damage.
  - Every 3-months except that cord sets and receptacles exposed to damage must be tested at regular intervals not to exceed 6 months.
- **Conduct tests for:**
  - Continuity of equipment of grounding conductor.
  - Proper terminal connection of equipment grounding conductor.

## 29 CFR Part 1926 Safety and Health Regulations for Construction Subpart K (Partial)

### § 1926.404 wiring design and protection.

#### (b) Branch circuits-(1) Ground-fault protection-(I) General.

The employer shall use either ground-fault circuit interrupters as specified in paragraph (b)(1)(ii) of this section or an assured equipment grounding conductor program as specified in paragraph (b)(1)(iii) of this section to protect employees on construction sites. These requirements are in addition to any other requirements for equipment grounding conductors.

**(ii) Ground-fault circuit interrupters.** All 120-volt, single-phase, 15- and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure and which are in use by employees, shall have approved ground-fault circuit interrupters for personnel protection. Receptacles on a two-wire, single-phase portable or vehicle-mounted generator rated not more than 5kW, where the circuit conductors of the generator are insulated from the generator frame and all other grounded surfaces, need not be protected with ground-fault circuit interrupters.

**(iii) Assured equipment grounding conductor program.** The employer shall establish and implement an assured equipment grounding conductor program on construction sites covering all cord sets, receptacles which are not a part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees. This program shall comply with the following minimum requirements:

(A) 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 and any affected employee.

(B) The employer shall designate one or more competent persons (as defined in § 1926.32(f)) to implement the program.

(C) Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, shall be visually inspected before each day's use for external defects, such as deformed or missing pins or insulation

damage, and for indications of possible internal damage. Equipment found damaged or defective shall not be used until repaired.

(D) The following tests shall be performed on all cord sets, 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:

(1) All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.

(2) Each receptacle and attachment cap or plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.

(E) All required tests shall be performed:

(1) Before first use;

(2) Before equipment is returned to service following any repairs;

(3) 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

(4) 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.

(F) The employer shall not make available or permit the use by employees of any equipment which has not met the requirements of paragraph (b)(1)(iii) of this section.

(G) Tests performed as required in this paragraph 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.

*All About OSHA* – OSHA 2056

*Code of Federal Regulations – Title 29, Part 1910, Subpart S and Part 1926, Subpart K*

*Construction Industry* – OSHA 2207

*Consultation Services for the Employer* – OSHA 3047

*Controlling Electrical Hazards* – OSHA 3075

*Electrical Standards for Construction* – OSHA 3097

*Employer Rights and Responsibilities Following an OSHA Inspection* – OSHA 3000

*Hand and Power Tools* – OSHA 3080

*OSHA: Employee Workplace Rights* – OSHA 3021

*OSHA Inspections* – OSHA 2098

*Personal Protective Equipment* – OSHA 3077

*Underground Construction (Tunneling)* – OSHA 3115

Single free copies of the above publications can be obtained from the U.S. Department of Labor, OSHA/OICA Publications, P.O. Box 37535, Washington, DC 20013-7535. Send a self-addressed mailing label with your request.

The following publications may be ordered at cost, from the Superintendent of Documents, U.S. Government Printing Office, Washington DC 20402, (202) 512-1800. Include GPO Order No. And make checks payable to Superintendent of Documents.

***Code of Federal Regulations – Title 29, Part 1926***

***Construction (OSHA)*** (\$31) (\$38.50 Foreign).

Order No. S/N 869-032-00107-3.

***OSHA Safety and Health Standards (29 CFR 1910.1000 to End)***

(\$29) (Foreign \$36.25) Order No. S/N 869-032-00105-7.

***Controlling Electrical Hazards*** – OSHA 3075 (\$1)

Order No. 029-016-00126-3.

***Handbook for Small Business*** – OSHA 2209 (\$6.50)

Order No. 029-016-00176-0.

**Commissioner**

Alaska Department of Labor  
1111 West 8th Street  
Room 306  
Juneau, AK 99801  
(907) 465-2700

**Director**

Industrial Commission  
of Arizona  
800 W. Washington  
Phoenix, AZ 85007  
(602) 542-5795

**Director**

California Department  
of Industrial Relations  
45 Fremont Street  
San Francisco, CA 94105  
(415) 972-8835

**Commissioner**

Connecticut Department  
of Labor  
200 Folly Brook Boulevard  
Wethersfield, CT 06109  
(860) 566-5123

**Director**

Hawaii Department of Labor  
and Industrial Relations  
830 Punchbowl Street  
Honolulu, HI 96813  
(808) 586-8844

**Commissioner**

Indiana Department of Labor  
State Office Building  
402 West Washington Street  
Room W195  
Indianapolis, IN 46204  
(317) 232-2378

**Commissioner**

Iowa Division of Labor  
Services  
1000 E. Grand Avenue  
Des Moines, IA 50319  
(515) 281-3447

**Secretary**

Kentucky Labor Cabinet  
1047 U.S. Highway,  
127 South, Suite 2  
Frankfort, KY 40601  
(502) 564-3070

**Commissioner**

Maryland Division of Labor  
and Industry  
Department of Labor  
Licensing and Regulation  
1100 N. Eutaw Street,  
Room 613  
Baltimore, MD 21201-2206  
(410) 767-2215

**Director**

Michigan Department  
of Consumer and Industry  
Services  
4th Floor, Law Building  
P.O. Box 30004  
Lansing, MI 48909  
(517) 373-7230

**Commissioner**

Minnesota Department  
of Labor and Industry  
443 Lafayette Road  
St. Paul, MN 55155  
(612) 296-2342

**Administrator**

Nevada Division of Industrial  
Relations  
400 West King Street  
Carson City, NV 89710  
(702) 687-3032

**Secretary**

New Mexico Environment  
Department  
1190 St. Francis Drive  
P.O. Box 26110  
Santa Fe, NM 87502  
(505) 827-2850

**Commissioner**

New York Department  
of Labor  
W. Averell Harriman State  
Office Building - 12,  
Room 500  
Albany, NY 12240  
(518) 457-2741

**Commissioner**

North Carolina Department  
of Labor  
319 Chapanoke Road  
Raleigh, NC 27603  
(919) 662-4585

**Administrator**

Department of Consumer  
& Business Services  
Occupational Safety  
and Health Division  
(OR-OSHA)  
350 Winter Street, NE,  
Room 430  
Salem, OR 97310-0220  
(503) 378-3272

**Secretary**

Puerto Rico Department  
of Labor and Human  
Resources  
Prudencio Rivera Martinez  
Building  
505 Munoz Rivera Avenue  
Hato Rey, PR 00918  
(809) 754-2119

**Director**

South Carolina Department  
of Labor Licensing  
and Regulation  
Koger Office Park, Kingstree  
Building  
110 Centerview Drive  
P.O. Box 11329  
Columbia, SC 29210  
(803) 896-4300

**Commissioner**

Tennessee Department  
of Labor  
Attention: Robert Taylor  
710 James Robertson  
Parkway  
Nashville, TN 37243-0659  
(615) 741-2582

**Commissioner**

Industrial Commission  
of Utah  
160 East 300 South, 3rd Floor  
P.O. Box 146650  
Salt Lake City, UT  
84114-6650  
(801) 530-6898

**Commissioner**

Vermont Department of Labor  
and Industry  
National Life Building -  
Drawer 20  
120 State Street  
Montpelier, VT 05620  
(802) 828-2288

**Commissioner**

Virginia Department of Labor  
and Industry  
Powers-Taylor Building  
13 South 13th Street  
Richmond, VA 23219  
(804) 786-2377

**Commissioner**

Virgin Islands Department  
of Labor  
2131 Hospital Street, Box 890  
Christiansted  
St. Croix, VI 00820-4666  
(809) 773-1994

**Director**

Washington Department  
of Labor and Industries  
General Administrative  
Building  
P.O. Box 44001  
Olympia, WA 98504-4001  
(360) 902-4200

**Administrator**

Worker's Safety  
and Compensation Division  
(WSC)  
Wyoming Department  
of Employment  
Herschler Building, 2nd Floor  
East 122 West 25th Street  
Cheyenne, WY 82002  
(307) 777-7786

<b>State</b>	<b>Telephone</b>
Alabama .....	(205) 348-7136
Alaska .....	(907) 269-4957
Arizona .....	(602) 542-5795
Arkansas .....	(501) 682-4522
California .....	(415) 982-8515
Colorado .....	(970) 491-6151
Connecticut .....	(860) 566-4550
Delaware .....	(302) 761-8219
District of Columbia .....	(202) 576-6339
Florida .....	(904) 488-3044
Georgia .....	(404) 894-2646
Guam .....	011 (671) 475-0136
Hawaii .....	(808) 586-9100
Idaho .....	(208) 385-3283
Illinois .....	(312) 814-2337
Indiana .....	(317) 232-2688
Iowa .....	(515) 281-5352
Kansas .....	(913) 296-7476
Kentucky .....	(502) 564-6895
Louisiana .....	(504) 342-9601
Maine .....	(207) 624-6460
Maryland .....	(410) 333-4210
Massachusetts .....	(617) 727-3982
Michigan .....	(517) 332-8250(H)
.....	(517) 322-1809(S)
Minnesota .....	(612) 297-2393
Mississippi .....	(601) 987-3981
Missouri .....	(573) 751-3403
Montana .....	(406) 444-6418
Nebraska .....	(402) 471-4717
Nevada .....	(702) 486-5016
New Hampshire .....	(603) 271-2024
New Jersey .....	(609) 292-2424
New Mexico .....	(505) 827-4230
New York .....	(518) 457-2481
North Carolina .....	(919) 662-4644
North Dakota .....	(701) 328-5188

<b>State</b>	<b>Telephone</b>
Ohio .....	(614) 644-2246
Oklahoma .....	(405) 528-1500
Oregon .....	(503) 378-3272
Pennsylvania .....	(412) 357-2561
Puerto Rico .....	(809) 754-2188
Rhode Island .....	(401) 277-2438
South Carolina .....	(803) 734-9614
South Dakota .....	(605) 688-4101
Tennessee .....	(615) 741-7036
Texas .....	(512) 440-3834
Utah .....	(801) 530-6868
Vermont .....	(802) 828-2765
Virginia .....	(804) 786-6359
Virgin Islands .....	(809) 772-1315
Washington .....	(360) 902-5638
West Virginia .....	(304) 558-7890
Wisconsin .....	(608) 266-8579(H)
.....	(414) 521-5063(S)
Wyoming .....	(307) 777-7700

(H) Health

(S) Safety

<b>Area</b>	<b>Telephone</b>
Albany, NY .....	(518) 464-6742
Albuquerque, NM .....	(505) 248-5302
Allentown, PA .....	(610) 776-0592
Anchorage, AK .....	(907) 271-5152
Appleton, WI .....	(414) 734-4521
Austin, TX .....	(512) 916-5783
Avenel, NJ .....	(908) 750-3270
Baltimore, MD .....	(410) 962-2840
Bangor, ME .....	(207) 941-8177
Baton Rouge, LA .....	(504) 389-0474
Bayside, NY .....	(718) 279-9060
Bellevue, WA .....	(206) 553-7520
Billings, MT .....	(406) 247-7494
Birmingham, AL .....	(205) 731-1534
Bismarck, ND .....	(701) 250-4521
Boise, ID .....	(208) 334-1867
Bowmansville, NY .....	(716) 684-3891
Braintree, MA .....	(617) 565-6924
Bridgeport, CT .....	(203) 579-5581
Calumet City, IL .....	(708) 891-3800
Carson City, NV .....	(702) 885-6963
Charleston, WV .....	(304) 347-5937
Cincinnati, OH .....	(513) 841-4132
Cleveland, OH .....	(216) 522-3818
Columbia, SC .....	(803) 765-5904
Columbus, OH .....	(614) 469-5582
Concord, NH .....	(603) 225-1629
Corpus Christi, TX .....	(512) 888-3420
Dallas, TX .....	(214) 320-2400
Denver, CO .....	(303) 844-5285
Des Plaines, IL .....	(847) 803-4800
Des Moines, IA .....	(515) 284-4794
Englewood, CO .....	(303) 843-4500
Erie, PA .....	(814) 833-5758
Fort Lauderdale, FL .....	(305) 424-0242
Fort Worth, TX .....	(817) 581-7303
Frankfort, KY .....	(502) 227-7024
Harrisburg, PA .....	(717) 782-3902
Hartford, CT .....	(203) 240-3152
Hasbrouck Heights, NJ .....	(201) 288-1700
Guaynabo, PR .....	(787) 277-1560
Honolulu, HI .....	(808) 541-2685
Houston, TX .....	(713) 286-0583

Area	Telephone
Houston, TX .....	(713) 591-2438
Indianapolis, IN .....	(317) 226-7290
Jackson, MS .....	(601) 965-4606
Jacksonville, FL .....	(904) 232-2895
Kansas City, MO .....	(816) 483-9531
Lansing, MI .....	(517) 377-1892
Little Rock, AR .....	(501) 324-6291
Lubbock, TX .....	(806) 743-7681
Madison, WI .....	(608) 264-5388
Marlton, NJ .....	(609) 757-5181
Methuen, MA .....	(617) 565-8110
Milwaukee, WI .....	(414) 297-3315
Minneapolis, MN .....	(612) 664-5460
Mobile, AL .....	(334) 441-6131
Nashville, TN .....	(615) 781-5423
New York, NY .....	(212) 466-2482
Norfolk, VA .....	(804) 441-3820
North Aurora, IL .....	(630) 896-8700
Oklahoma City, OK .....	(405) 23105351
Omaha, NE .....	(402) 221-3182
Parsippany, NJ .....	(201) 263-1003
Peoria, IL .....	(309) 671-7033
Philadelphia, PA .....	(215) 597-4955
Phoenix, AZ .....	(602) 640-2007
Pittsburgh, PA .....	(412) 644-2903
Portland, OR .....	(503) 326-2251
Providence, RI .....	(401) 528-4669
Raleigh, NC .....	(919) 856-4770
Salt Lake City, UT .....	(801) 524-5080
San Francisco, CA .....	(415) 744-7120
Savannah, GA .....	(912) 652-4393
Smyrna, GA .....	(404) 984-8700
Springfield, MA .....	(413) 785-0123
St. Louis, MO .....	(314) 425-4249
Syracuse, NY .....	(315) 451-0808
Tampa, FL .....	(813) 626-1177
Tarrytown, NY .....	(914) 524-7510
Toledo, OH .....	(419) 259-7542
Tucker, GA .....	(770) 493-6644
Westbury, NY .....	(516) 334-3344
Wichita, KS .....	(316) 269-6644
Wilkes-Barre, PA .....	(717) 826-6538
Wilmington, DE .....	(302) 573-6115

**Region I**

**(CT,\* MA, ME, NH, RI, VT\*)**  
JKF Federal Building  
Room E-340  
Boston, MA 02203  
Telephone: (617) 565-9860

**Region II**

**(NJ, NY,\* PR,\* VI\*)**  
201 Varick Street  
Room 670  
New York, NY 10014  
Telephone: (212) 337-2378

**Region III**

**(DC, DE, MD,\* PA, VA,\* WV)**  
Gateway Building, Suite 2100  
3535 Market Street  
Philadelphia, PA 19104  
Telephone: (215) 596-1201

**Region IV**

**(AL, FL, GA, KY,\* MS, NC\*,  
SC,\* TN\*)**  
Atlanta Federal Center  
61 Forsyth Street, SW,  
Room 6T50  
Atlanta, GA 30303  
Telephone: (404) 562-2300

**Region V**

**(IL, IN,\* MI,\* MN,\* OH, WI)**  
230 South Dearborn Street  
Room 3244  
Chicago, IL 60604  
Telephone: (312) 353-2220

**Region VI**

**(AR, LA, NM,\* OK, TX)**  
525 Griffin Street  
Room 602  
Dallas, TX 75202  
Telephone: (214) 767-4731

**Region VII**

**(IA,\* KS, MO, NE)**  
City Center Square  
1100 Main Street, Suite 800  
Kansas City, MO 64105  
Telephone: (816) 426-5861

**Region VIII**

**(CO, MT, ND, SD, UT,\* WY\*)**  
1999 Broadway, Suite 1690  
Denver, CO 80202-5716  
Telephone: (303) 844-1600

**Region IX**

**(American Samoa, AZ,\* CA,\*  
Guam, HI,\* NV,\* Trust  
Territories of the Pacific)**  
71 Stevenson Street  
Room 420  
San Francisco, CA 94105  
Telephone: (415) 975-4310

**Region X**

**(AK,\* ID, OR,\* WA\*)**  
1111 Third Avenue  
Suite 715  
Seattle, WA 98101-3212  
Telephone: (206) 553-5930

\*These states and territories operate their own OSHA-approved job safety and health programs (Connecticut and New York plans cover public employees only). States with approved programs must have a standard that is identical to, or at least as effective as, the federal standard.



Order Processing Code:

**\*7663**

Charge your order.  
It's easy!



Fax orders to: (202) 512-2250  
Phone orders to: (202) 512-1800  
Mail to: Superintendent of Documents  
PO Box 371954,  
Pittsburgh PA 15250-7954

**YES**, please send me the following publications (available as of 10/97):

**Code of Federal Regulations, Title 29**

- \_\_\_ copies of **29CFR, Parts 1900–1910 (1901.1 to 1910.999)**, revised 7/1/97, S/N 869–032–00104–9 at \$43 each (\$53.75 foreign).
- \_\_\_ copies of **29CFR, Parts 1910 (1910.1000 to end)**, revised 7/1/97, S/N 869–032–00105–7 at \$29 each (\$36.25 foreign).
- \_\_\_ copies of **29CFR, Parts 1911–1925**, revised 7/1/97, S/N 869–032–00106–5 at \$19 each (\$23.75 foreign).
- \_\_\_ copies of **29CFR, Part 1926**, revised 7/1/97, S/N 869–032–00107–3 at \$31 each ( \$38.50 foreign).
- \_\_\_ copies of **29CFR, Parts 1927–end**, revised 7/1/97, S/N 869–032–00108–1 at \$40 each (\$50 foreign).

Total cost of my order is \$ \_\_\_\_\_. Prices include regular shipping and handling and are subject to change.

Personal name \_\_\_\_\_ (Please type or print)

Company name \_\_\_\_\_

Street address \_\_\_\_\_

City, State, Zip code \_\_\_\_\_

Daytime phone including area code \_\_\_\_\_

Purchase order no. (optional) \_\_\_\_\_

**Please choose method of payment:**

- Check payable to the Superintendent of Documents
- GPO Deposit Account  –
- VISA  MasterCard  Discover/NOVUS

(expiration date)

**Thank you for your order!**

(Authorizing signature)