GFCIs and Assured Equipment Grounding Conductor Program

5-Minute Talk

Overview of topic

At construction sites the most common electrical hazard is the ground fault electrical shock. A ground fault occurs when a 'hot' electrical wire contacts a grounded enclosure. In most sit-uations, the fault will trip a circuit breaker or blow a fuse. However, if a break in the ground wire occurs, the worker would no longer be protected unless a secondary safety measure is available.

The use off a ground-fault circuit interrupter (GFCI) is one method to overcome ground and insulation deficiencies. The GFCI is a fast-acting circuit breaker which senses small imbal-ances in the circuit caused by current leakage to ground and, in a fraction of a second, shuts off the electricity. The GFCI will not protect employees from line-to-line contact hazards, but it does provide protection against fires, overheating, and destruction of wiring insulation.

OSHA's requires you to provide either a ground-fault circuit interrupter, or a scheduled and recorded assured equipment grounding conductor program.

Ground-fault circuit interrupters (GFCIs)

You are required to provide approved ground-fault circuit interrupters for all 120-volt, single-phase, 15- and 20-ampere receptacle outlets on construction sites not a part of the permanent wiring of the structure and which are in use by employees. Receptacles on the ends of extension cords are not part of the permanent wiring and must be protected by GFCIs.

GFCIs monitor the current-to-the-load for leakage to ground. When this leakage exceeds 5mA +/ - 1 mA, the GFCI interrupts the current. They are rated to trip quickly enough to prevent electrocution.

Assured equipment grounding conductor program

The assured equipment grounding conductor program covers all cord sets, receptacles which are not a part of the permanent wiring of the structure, and equipment connected by cord and plug.

OSHA requires:

- A written description of your program to be kept at your jobsite outlining your specific procedures for the required inspections, tests, and test schedule.
- That required tests be recorded, and the record kept until replaced by a more current record.
- That you designate one or more competent persons to implement the program.
- Electrical equipment noted in the program must be visually inspected before each day's use. Any damaged or defective equipment must not be used by employees until repaired.

Two tests are required by OSHA. They are:

- A continuity test to ensure the grounding conductor is electrically continuous.
- A test to ensure that the grounding conductor is connected to its proper terminal.

These tests are required before first use, after any repairs, after damage is suspected to have occurred, and at 3-month intervals. Any equipment failing the required tests cannot be made available or used by employees.

Employee Training

No specific training requirements are mentioned in the electrical standard. However, you must always, “instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.”

Training tips

Go over the program used to protect your employees against the dangers of ground fault electrical shock.

Where to go for more information

- Regulatory text: 29 CFR 1926.404(b)(1)(ii) and (iii)
- National Electrical Code, National Fire Protection Association
- Regulatory text 29 CFR 1926.21(b)(2)—Safety training and education, employer responsibility