



MIOSHA Fact Sheet

Consultation Education & Training Division

GFCI Requirements for General Industry

What is GFCI?

A ground-fault circuit interrupter (GFCI) is a device intended for the protection of personnel. It functions to deenergize a circuit within an established period of time (about .025 sec.) faster than the eye can blink, to mitigate the harm caused by electric shock. It detects that the electric current is not balanced between the hot or live conductor and the neutral conductor. GFCI can be built into a circuit breaker or a receptacle or incorporated into an extension cord set or portable distribution board for temporary use. It can easily be tested or reset with a push of a button.

What general industry standard applies?

General Industry Safety Standard Part 39.
Design Safety Standards for Electrical Systems

Where is this protection required?

Swimming pools, fountains, and similar installations

Rule 306(j)(1)(ii) Receptacles that are located within 4.57 m (15 ft), 6.08 m (20 ft) if the installation was built after August 13, 2007, of the inside walls of the pool shall be protected by ground-fault circuit interrupters.

Rule 306(j)(2)(i)&(ii) Most lighting fixtures or lighting outlets located less than 3.05 m (10 ft) measured horizontally from the inside walls of a pool shall be protected by a GFCI.

Rule 306(j)(4)(i) A GFCI shall be installed in the branch circuit supplying underwater fixtures operating at more than 15 volts.

Rule 306(j)(5) All electric equipment, including power supply cords, operating at more than 15 volts and used with fountains shall be protected by ground-fault circuit interrupters.

Building exterior and bathrooms

Rule 304(b)(3)(i) All 125-volt, single-phase, 15- and 20-ampere receptacles installed in bathrooms or on rooftops, shall have ground-fault circuit-interrupter protection for personnel.

Temporary wiring

Rule 304(b)(3)(ii) Temporary wiring installations that are used during construction-like activities, including certain maintenance, remodeling, or repair activities, involving buildings, structures or equipment are required to have ground-fault circuit interrupter protection. Temporary wiring includes:

1. Receptacle outlets that are not part of the permanent wiring of the building or structure.
2. All the wiring extending from a portable power outlet or panel board.
3. Running a series of cord sets from a permanent receptacle to power a piece of equipment.
4. An extension cord set run from a single permanent outlet to power more than one piece of equipment.
5. Other construction-like activities.

What are construction-like activities?

1. Exposure to wet, damp, or conductive conditions, such as often encountered when working outside.
2. Frequent reconfiguration and rearrangement of the electric equipment.
3. Clean up and disaster remediation.
4. Employees engaged in a minor building repair using temporary wiring. The conditions are damp or an electric cord set is being used and is subjected to rough use or abuse.
5. Manufacturing prefabricated housing, in which houses or portions of houses are assembled in a manufacturing plant. This process poses some electrical hazards that are similar to those found during housing construction (for example, rough use of cord sets).

What are construction-like activities? (cont.)

6. Performing heat exchanger tubing water-blasting (hydrocleaning) using temporary wiring. This process is usually done outside in wet and conductive environmental conditions and may involve rough cord use.

What would not require GFCI?

1. Tools or equipment plugged directly into a permanent receptacle that is part of the structure's wiring.
2. A single tool or piece of equipment plugged into a single extension cord connected to a permanent receptacle. MIOSHA does not consider a single extension cord to be a temporary wiring installation. In such situations, an extension cord is typically used to extend the length of the power supply cord on a tool or appliance to reach a nearby receptacle. In this application, MIOSHA considers the extension cord set to be part of the utilization equipment.



**GFCI
Circuit
Breaker**



**GFCI
Receptacle**



**Inline
GFCI for
Cords**

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