

MIOSHA Fact Sheet

GFCI Requirements for General Industry



What is a GFCI?

A ground-fault circuit interrupter (GFCI) is a safety device that protects personnel against electrical shock by quickly interrupting the flow of electricity when it detects a ground fault. A ground fault occurs when electrical current flows to ground through an unintended path. A GFCI constantly monitors the amount of electrical current; if the amount returning is less than what is sent out, the GFCI trips. The unintended path could be through a person. GFCIs can be built into a receptacle or circuit breaker. For temporary use applications, extension cord attachments with a GFCI incorporated are available. GFCIs can easily be tested or reset by pushing a button on them.

What general industry standard applies?

General Industry Standard [Part 39, Design Safety Standards for Electrical Systems](#)

Where is this Protection Required?

Bathrooms and Rooftops

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

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 GFCI.

Rule 306(j)(2)(i) and (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 GFCI.

Temporary wiring installations during construction-like activities

Rule 304(b)(3)(ii) describes the requirements for temporary wiring installations that are used during construction-like activities. These are certain maintenance, remodeling, or repair activities involving building, structures or equipment. Temporary wiring includes:

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

What are construction-like activities?

The term “construction-like” applies to activities that, while not construction, involve some of the hazards that are typically found in construction work. In general, these are activities that pose hazards that are similar to those associated with the use of temporary receptacles on construction sites; that is, hazards resulting from more severe use or environmental conditions. Examples include:

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(CET Fact Sheet #0177 • Revised 12/2/2025)



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. 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.
4. 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).
5. Performing heat exchanger tubing water-blasting (hydro-cleaning) using temporary wiring. This process is usually done outside in wet and conductive environmental conditions and may involve rough cord use.



Figure 1 GFCI Circuit Breaker



Figure 2 GFCI Outlet



Figure 3 Line Cord GFCI

Are there additional requirements?

Rule 303(b)(2) Listed or labeled equipment shall be installed and used in accordance with any instructions included in the listing or labeling. This includes installation, inspection, and testing.

What would not require a 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.

MIOSHA's Consultation Education and Training (CET) Division can provide and assist with more information on GFCI requirements as well as safety and health training. You may contact the CET Division at 517-284-7720 or online at www.michigan.gov/cet. CET may also be available to employee groups and other organizations. Call to request help.