

Ground Fault Circuit Interrupter Protection on Receptacles

Rules 26-700(11), 26-700(12), 26-710(f), 26-712(d)(iii), 26-714, 12-3036 and Tables 22 and 23

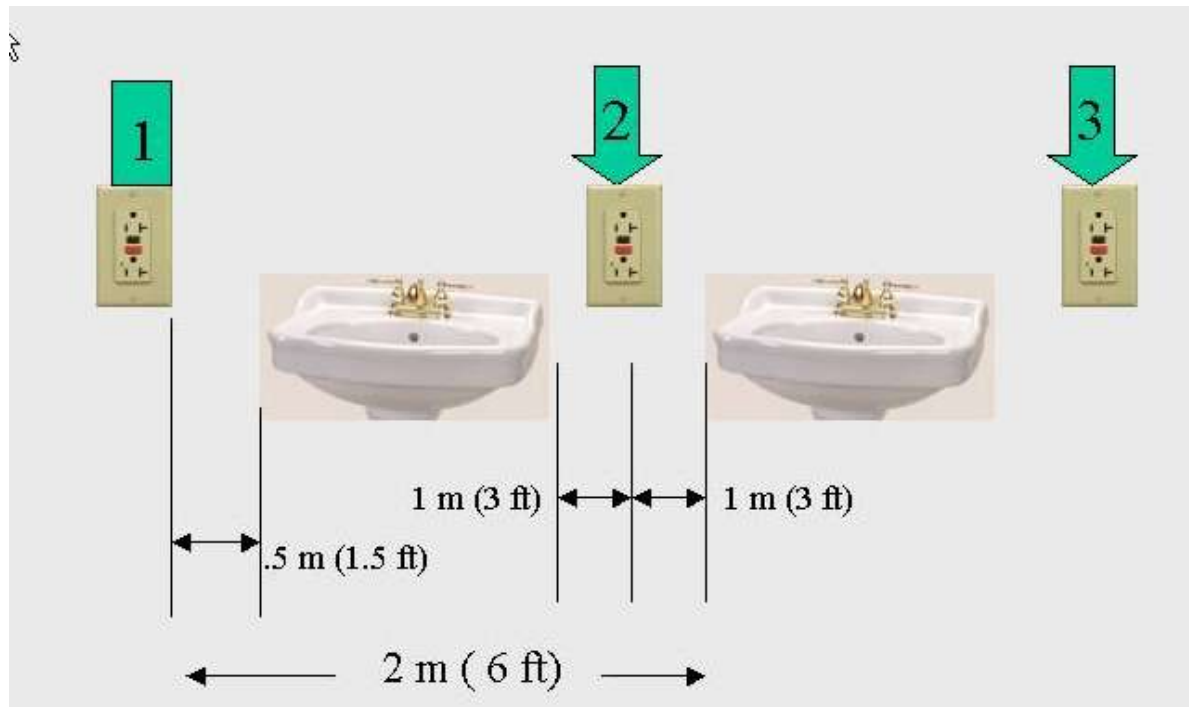
Required Receptacles in Residential Washrooms

Rule 26-710(f)

Question

If you have two washbasins in a bathroom does the GFCI receptacle to one side of one washbasin meet the

requirements of rule 26-710(f), as identified by position 1 in the diagram if the second washbasin is 1.5 m from the receptacle?



Answer

No, one GFCI receptacle at position "1" does not meet the intent of the Rule.

Rule 26-710(f) states that at least one receptacle shall be installed within 1 m of the washbasin located in each bathroom or washroom. This means that a second GFCI receptacle shall be installed in location "2" or "3".

As an alternative if you install one GFCI receptacle between the two washbasins as identified in location "2", this will meet the Code requirement for both washbasins as long as the GFCI is within 1 meter of either washbasin.

GFCI Protection of Kitchen Counter Receptacles

Rule 26-700(12)

The 2002 edition of the Ontario Electrical Safety Code includes an Ontario amendment to Rule 26-700, which requires Ground Fault Circuit Interrupter (GFCI) protection for Kitchen Counter receptacles effective

January 1, 2003. The new Subrule (26-700(12) states that effective January 2003:

(12) Receptacles located in kitchens and installed within 1 m of a kitchen sink along the wall behind counter work surfaces shall be protected by a ground fault circuit interrupter of the Class A type.

Appendix B note: Distance of 1 m is measured from edge of kitchen sink.

The following guidelines shall be used for consistent interpretation and application of this new subrule effective January 1, 2003.

1. This rule applies to **all** receptacle installations located within 1 m of a kitchen sink along the wall behind counter work surfaces where the plans **or** application for inspection is received on or after January 1, 2003.

2. This rule applies to all kitchens.
 - 2.1. Kitchen is defined as “a place (as a room) with cooking facilities”
 - 2.2. A cooking facility is defined as a range or stove (electric or gas supply) for cooking. Hot plates, microwaves, etc. are not defined as a cooking facility for application of this rule.
3. In dwelling units, Rules 26-712(d) and 26-722(b) require that kitchen counter receptacles be split receptacles connected to multi-wire 15 amp branch circuits. Rule 26-726 permits the installation of 5-20 RA (T-slot) receptacles connected to single 20 amp branch circuits as an alternative to split receptacles and circuits.
4. The adjacency requirement as stated in Rules 26-722(b) and 26-726(3) has been deemed to offer no added safety value to an installation. The Canadian Electrical Code has deleted the adjacency requirement in the next edition. ESA along with the Ontario Provincial Code Council has reviewed the Part I direction and the adjacency requirement in Rule 26-722 for counter receptacles is no longer applicable”. This direction is also supported by the Electrical Contractor’s in Ontario.

Receptacles in Dwelling Units

Rule 26-712(d)(iii)

Question

Does Rule 26-712(d)(iii) prevent the installation of split 20 amp T-slot receptacles supplied by 20 amp multi-wire circuits along the wall, behind a kitchen counter work surface?

Answer: No.

Rationale

Rule 26-710(b) states that either 15 amp split or 20 amp single receptacles are permitted. The installation of 20 amp split T-slot receptacles and a multiwire 20 amp circuit meets the intent of the Code. There is no rule preventing the installation. Note that if 20A split T-slot receptacles are within 1 meter of the kitchen sink they are to be protected by GFCI breaker.

Ground Fault Circuit Interrupter Protection on Receptacles within 3 m of Washbasins, Bathtubs or Showers

Rule 26-700(11)

To assist in consistent application of this rule, the intent of the rule is to provide protection against electrical shock

hazard when using portable personal grooming appliances.

- (1) The requirements of the rule apply to receptacles located in a bathroom or washroom and installed within 3 m of washbasins, bathtubs or showers.

In addition to bathrooms and washrooms found in dwelling units, a washroom will be considered as any room containing personal washing facilities found in occupancies such as motels, hotels, golf clubs, barber shops, health clubs, sports facilities, commercial and industrial installations, where the receptacle is at counter height and a personal grooming appliance could be used.

- (2) Doctors' examining rooms, dentists' offices, laboratories, classrooms and similar areas are not considered as washrooms. However, if there is a bathroom or washroom in a patient care area the receptacle shall be GFCI protected as per subrule 24-106(3).
- (3) The rule does not apply to receptacles in combined bath and laundry rooms provided the receptacle is located behind the washing machine at not more than 600 mm from the floor as per Rule 26-710(h).

Size of Outlet Box

Rule 12-3036 and Tables 22 and 23

There has been inconsistent interpretation of the code concerning the minimum size outlet box to be used where receptacle type GFCI's are installed - that is, can a standard 204 ml (12.5 cubic inch) box be used or must it be larger?

Where the GFCI is more than 2.54 cm (one inch) thick (e.g. 3.81 cm or 1½ inches), and the circuit continues beyond the GFCI with AWG No 14 copper conductors, the code requires use of an outlet box with at least a 221 ml (13.5 cubic inch) capacity. Applying Rule 12-3036, a 3.81 cm or (1½ inch) thick GFCI is considered to occupy 123 ml (7.5 cubic inches) (subrule 3), four No 14 AWG conductors occupy 98.4 ml (6 cubic inches) (Table 22), for a total of 221 ml (13.5 cubic inches). A 204 ml (12.5 cubic inch) capacity box cannot be used.

However, if the GFCI receptacle is the last on the circuit, the required volume is 172 ml (10.5 cubic inches) and a 204 ml (12.5 cubic inch) box can be used.

The above provides a sample calculation for older type GFCI's. GFCI receptacles with side terminals and that measure 3 cm or less in depth from the back of the mounting strap are now readily available from most

manufacturers. The following table illustrates the minimum depth of 3 x 2 device box required for some different installations based Table 23:

GFCI depth from back of strap	2 insulated # 14 AWG conductors	4 insulated # 14 AWG conductors
less than or equal to 3 cm	3 x 2 x 2 device box	3 x 2 x 2.5 device box
less than or equal to 4 cm	3 x 2 x 2.5 device box	3 x 2 x 3 device box

The following table illustrates the minimum depth of 3 x 2 device box required for GFCI receptacles at kitchen counters connected to 20 amp #12 AWG branch circuits based Table 23:

GFCI depth from back of strap	2 insulated # 12 AWG conductors	4 insulated # 12 AWG conductors
less than or equal to 3 cm	3 x 2 x 2 device box	3 x 2 x 3 device box
less than or equal to 4 cm	3 x 2 x 2.5 device box	3 x 2 x 3 device box

The cubic inch capacity of common outlet box types are in Table 23. For those not shown in Table 23, Canadian Standards Association standard C22.2 No 18-92 requires the capacity to be marked on the box in ml. (100 ml are equivalent to 6.1 cubic inches).

GFCI Protection of Receptacles in Carports and Garages

Rule 26-714

Do receptacles located in a carport for a dwelling unit require GFCI protection?

Yes, all receptacles located in a carport shall be considered as outdoors and shall be protected by a ground fault circuit interrupter of the Class A type.

A carport receptacle is not on an interior surface of a building, it is on the exterior surface facing out, and hence it is outdoors. Rule 26-714(b) says all receptacles installed outdoors and within 2.5 m of grade level... shall be GFCI protected.

A well-known dictionary defines a carport as a shelter for an automobile, consisting of a roof extended from the side of a building. Using the Ontario Building Code for additional guidance, a carport shall be considered as being a shelter for an automobile, consisting of a roof extended

from the side of a building and having less than 60% of the perimeter closed in by walls, doors or windows.

The Ontario Building Code states a carport that has more than 60% of the total perimeter enclosed by walls, doors, or windows shall be considered as being a garage.

The Ontario Electrical Safety Code does not require GFCI protection of receptacles within a garage however it is recommended that receptacles in a garage that may be used for outdoor appliances be protected by a ground fault circuit interrupter of the Class A type.