Bulletin 26-18-15

Arc-fault circuit interrupter (AFCI) and ground fault circuit interrupter (GFCI) in a dwelling unit
Rules 26-658, 26-704, and 26-708

Issued May 2025
Supersedes Bulletin 26-18-14

Scope

1) Definitions
    a) Dwelling unit
    b) Cooking facility
2) AFCI protection
3) GFCI protection

1) Definitions

a) Dwelling unit

A dwelling unit is a suite operated as a housekeeping unit that is used or intended to be used by one or more persons and contains cooking, eating, living, sleeping, and sanitary facilities as defined in the Ontario Electrical Safety Code (OESC).

Examples of dwelling units:

- single dwelling complete with cooking, eating, living, and sleeping facilities such as detached house, one unit of row housing or one unit of semi-detached, duplex, triplex or quadruplex
- an apartment unit complete with cooking, eating, living, and sleeping facilities
- a condominium unit complete with cooking, eating, living, and sleeping facilities
- a self-contained suite or unit in a motel or hotel complete with cooking, eating, living, and sleeping facilities
- a self-contained student dormitory unit consisting of cooking, eating, living, and sleeping facilities
- a self-contained unit in a long-term care facility consisting of cooking, eating, living, and sleeping facilities
- a self-contained, housekeeping rental cabin

Examples of non-dwelling units:

- Institutional facility such as a hospital, nursing home, long term care facility, etc.
- prison
- Facilities containing only living and sleeping facilities such as motel and hotel rooms, etc.

Question 1
Is a building intended as housing for seasonal agriculture workers, in the form of a "bunkhouse", considered a dwelling unit?

Answer 1
No.

Rationale 1
As defined by Foreign Agricultural Resource Management Services (FARMS) Ontario, bunkhouses and family housing are defined differently.

- FARMS Ontario defines a Bunkhouse as a building that includes individual bunks and may contain a common kitchen to service all staff and it is not intended to be used as a dwelling unit.
- FARMS Ontario definition of Family Housing matches OESC definition of a single dwelling, so when a building is intended for Family Housing for seasonal workers, all requirements for a single dwelling unit including arc-fault circuit interrupting (AFCI) requirements shall apply.

b) Cooking facility

A typical cooking facility includes appliances such as ranges or built-in ovens (electric or gas supply). Hot plates and microwaves do not constitute a cooking facility.

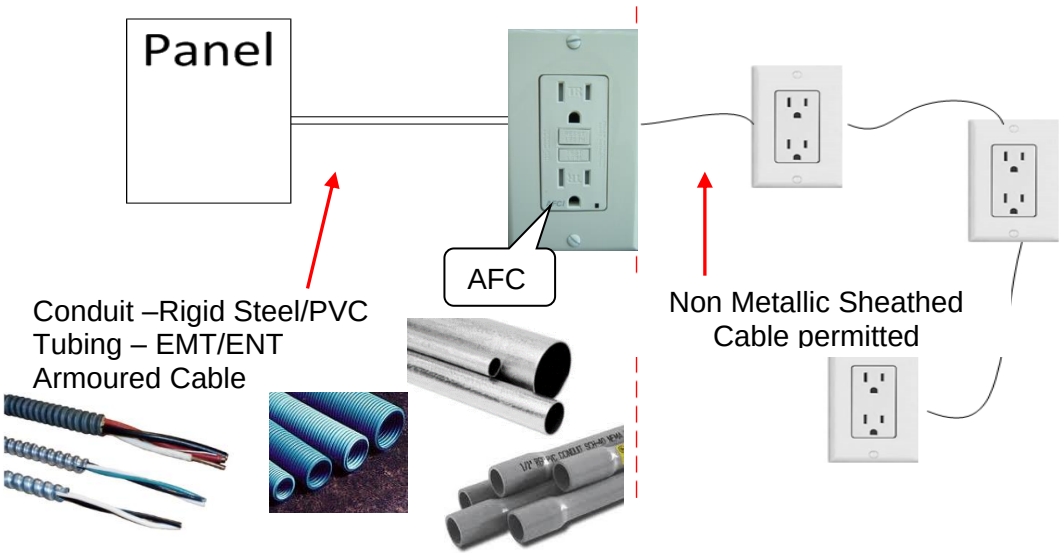
2) AFCI protection

Background
Prior to the 2015 OESC, the only type of AFCI device mandated was the Branch AFCI breaker. Branch AFCI breakers can only provide arcing protection against parallel faults The OESC now requires a **Combination-type AFCI**, which is a device that provides both series and parallel arc fault protection to the entire branch circuit wiring, including cord sets and power supply cords connected to the outlets, against the unwanted effects of arcing. Combination-type AFCI breakers are marked as "Combination Type Arc-Fault Circuit-Interrupter" or "Combination Type AFCI".

According to Rule 26-658 b), in addition to combination type breakers, outlet branch circuit-type arc-fault circuit interrupter (OBC) devices are now permitted when:

i) the OBC device type AFCI is installed at the first outlet on the branch circuit; and
ii) the wiring method for the portion of the branch circuit between the branch circuit overcurrent device and the first outlet is comprised of metal raceway, armoured cable or non-metallic conduit or tubing, as shown below in Diagram B1.

Diagram B1 – Wiring method when using OBC device



Rationale
Since OBC devices provide limited protection against arcing faults upstream of the OBC device (cannot interrupt parallel arcing faults), the increased wiring methods provide additional mechanical protection to the conductors from damage and also mitigates arcing faults from igniting adjacent combustibles.

Question 2
When a branch circuit originates from a dwelling unit to feed receptacles not installed in or on the dwelling unit (e.g. landscape, garage or shed receptacle) is arc-fault protection required

Answer 2
No, these branch circuits are not for the dwelling unit.

Question 3
For a branch circuit containing both lighting and receptacle outlets, is AFCI protection required?

Answer 3
Yes, unless exempted by Rule 26-658 a).

Question 4
Is AFCI protection required for receptacles not specifically exempted in rule 26-658, such as those for a dedicated microwave, dishwasher, or garbage disposal unit?

Answer 4
Yes.

Question 5
When a panelboard located on the exterior of a dwelling feeds adjacent receptacles and no portion of the branch circuit is contained within the dwelling, is AFCI protection required?

Answer 5
No.

Rationale 5
These branch circuits are not within or for the dwelling units.

3) GFCI protection

Rule 26-704 requires all receptacles of **5-15R or 5-20R** configuration installed outdoors **located within 2.5 m of** finished grade, to be protected by a ground-fault circuit interrupter (GFCI) of the Class A type. The Rule is not applicable to receptacles other than 5-15R or 5-20R configuration.

The OESC contains other rules to require GFCI protection for outdoor receptacles in other than residential occupancies, for example: receptacles and equipment around a pool (Rule 68-068 and Bulletin 68-7-*), receptacles for recreational vehicles and mobile homes (Rule 72-108) and receptacles for HVAC equipment located on rooftops (Rule 26-710 and Bulletin 26-27-*).

Question 6
Is GFCI protection required for a receptacle on a porch or balcony?

Answer 6
It depends on whether the porch or balcony is enclosed or not and whether the receptacle is at or within 2.5 m of finished grade. All receptacles (5-15R or 5-20R) installed outdoors and within 2.5 m of **finished grade** are required to be protected by a GFCI, as required by Rule 26-704 2).

Question 7
Does the OESC require GFCI protection of receptacles located in a residential carport?

Answer 7
Yes. All receptacles located in a residential carport shall be considered as outdoors and shall be protected by a GFCI of the Class A type, as per Rule 26-704. A carport that has more than 60% of the total perimeter enclosed by walls, doors or windows shall be considered as being a garage and GFCI protection shall not be required for receptacles within.

Note
Requirements for wet location cover plates are explained in Rule 26-708.

Rationale 7
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. Webster's dictionary defines a carport as a shelter for an automobile, consisting of a roof extended from the side of a building. The Ontario Building Code states that where a roofed enclosure is used for the storage or parking of motor vehicles and has more than 60% of the total perimeter enclosed by walls, doors or windows, the enclosure shall be considered a garage.

Question 8
Does the OESC require GFCI protection for receptacles installed outdoors, for vehicle block heaters?

Answer 8
Yes. This includes receptacles installed outdoors in parking lots of residential and non-residential establishments, as required by Rule 26-704.

Rationale 8
There is no exemption for GFCI protection for block heaters. The intent is to reduce the possibility for shock in both residential and non-residential occupancies in harsh winter environment conditions.