

The application requirements of 2018 CE Code for:

- a) Arc fault protection of branch circuits for dwelling units,**
- b) Receptacles for residential occupancies,**
- c) Tamper-resistant receptacles,**
- d) Grounding connections for solidly grounded ac systems supplied by the supply authority, and**
- e) Ampacities of feeder and service conductors for dwelling units and single dwellings.**

The intent of this bulletin is to clarify the application requirements of the 2018 CE Code of Rule 26-656; Rule 26-720 f); Rule 26-724 b); Rule 26-724 d) iii), iv) and v); Rule 26-706 1); Rule 10-210 and Rule 4-004 22) for:

- 1) branch circuits provided with the arc fault protection for dwelling units,
- 2) receptacles for the residential occupancies (including dwelling units and single dwellings),
- 3) tamper resistant receptacles in locations of the child care facilities and preschools,
- 4) grounding connections for solidly grounded ac systems supplied by the supply authority, and
- 5) ampacities of feeder and service conductors for dwelling units and single dwellings - Table 39.

This bulletin replaces Bulletin 2009-007-EL and Bulletin 2002-009-EL.

1) Application of Rule 26-656 - Arc fault protection of branch circuits for dwelling units.

It is intended by this Rule that the arc-fault protection requirements apply to branch circuits protecting receptacles inside dwelling units including single occupancy rooms, studios or bachelor suites and in apartment type hotels or motel suites equipped with kitchenette units. It is not intended to apply these requirements to branch circuits inside hotel or motel rooms or suites where such rooms or suites are not provided with kitchenettes. (Also, see 2018 CE Code, Appendix I – Interpretations)

2) Application of Rule 26-720 f) - Receptacles for residential occupancies (including dwelling units and single dwellings).

Where a vanity counter in a bathroom or washroom contains more than one wash basin, the receptacle installed under provision of this Rule may not be sufficient if any one of the multiple wash basins is located at more than 1.8 m from the receptacle; as the attachment cord of any cord-connected appliance is typically 1.5 m - 1.8 m long. In this case, the second receptacles must be provided as necessary to preclude the use of any extension cords. The distance between the most remote wash basin located on a common vanity counter and the receptacle must be measured horizontally along the floor line of the wall spaces in front of or adjacent to the wash basin.

3) Application of Rule 26-724 b) - Receptacles for dwelling units (including single dwellings).

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It is intended by this Rule to require at least one duplex receptacle on each open or enclosed porch or balcony that is accessible from inside the dwelling, and that is constructed to accommodate the occupants of the dwelling unit and to allow use of a cord and plug connected electrical equipment on that porch or balcony by the occupants of the dwelling unit. It is not intended by this requirement to install a receptacle on a balcony, a deck or a porch with a depth of less than 1 m or with a usable area of less than 1.86 sq. m (20 sq. ft.).

4) Application of Rule 26-724 d) iii), iv) and v) - Receptacles for dwelling units (including single dwellings).

Whether an island is structurally attached to the kitchen floor or not, it is a part of the kitchen cabinetry, the island is deemed to be a fixed island for the purpose and application of Rule 26-724 d) iv).

Where feasible, the receptacles for island and peninsular counter spaces shall be installed on a backsplash above the counter work surface, where such installation is not feasible (no backsplashes, dividers, etc.), at least one receptacle is required to be located below a countertop or at the counter space (such as pop up receptacles approved to be installed at countertop). It should be noted that receptacles must not be mounted facing up in the work surfaces or counters in accordance with Rule 26-720 c). It is not intended by Rule 26-724 d) iv) and v) to install a receptacle below a countertop where the countertop extends more than 150 mm beyond its support base.

The requirements of Rule 26-724 d) iii), iv) and v) are intended to require the use of duplex receptacles of CSA configuration 5-15R or 5-20R. Installation of the single receptacles is not permitted; duplex receptacles shall be provided as necessary to preclude the use of any extension cords.

5) Application of Rule 26-706 1) - Tamper-resistant receptacles.

Rule 26-706 1) requires that all receptacles of CSA configuration 5-15R and 5-20R installed in the locations readily accessible to children, such as child care facilities; guest rooms and suites of hotels and motels; preschools and elementary education facilities, and dwelling units must be tamper-resistant receptacles and be so marked.

For terms not specifically defined in the CE Code, the terms of child care facility and preschool used in Rule 26-706 1) should be understood to have the meaning of "Child Care Facility" as defined in the VBBL and "Child Day Care Facility" as defined in the Zoning and Development By-law.

6) Application of Rule 10-210 - Grounding connections for solidly grounded ac systems supplied by the supply authority.

Discussion:

Rule 10-210 contains the requirements for grounding connections for solidly grounded ac systems supplied by the supply authority, the Appendix B notes and Figures B10-4 and B10-5 explain how the grounding and bonding should be provided for the consumer's meter base and service box.

2015 CE Code Rule 10-204(1)(b) and Rule 6-402 2) recognize meter base is a part of service entrance equipment and a bonding of a meter base is done via connection of the grounded service conductor (neutral) to the enclosure by means of a bonding jumper.

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The Appendix B Rule 10-210 notes and Figure B10-5 depicting isolated neutral inside the meter mounting device appear to be confusing. Also meter mounting device may not have adequate provisions for terminating the grounding conductor, line and load neutral conductors and any required bonding as depicted in Figures B10-4.

Section 6 of the CE Code recognizes service meter mounting device (meter base) as a part of service equipment.

2015 CE Code Rule 10-204(1)(b) requires that a connection to a grounding electrode to be made at the service box or at other service equipment (i.e. at the upstream meter base), and Rule 10-624 also recognizes use of the grounded service conductor as a bonding means for enclosure of the meter mounting device or the service box on supply side of the service disconnecting means.

2018 CE Code Rule 10-210 requires that such connection to a grounding electrode to be made at one point only at the consumer's service (i.e. at the upstream meter base, as shown in Figure B10-4, or at the service entrance disconnecting means, as shown in Figure B10-5).

Interpretation and Direction:

Where a grounding connection is made at the meter base, then a bonding conductor must run to the service disconnecting means downstream of the meter base, and the neutral conductor in the service disconnecting means is not allowed to be connected to the enclosure and not allowed to be connected to the grounding electrode (a single point of grounding is done at the service meter base upstream, as shown in Figure B10-4).

Where a single point of grounding is provided at the service disconnecting means - downstream from the meter base, then the neutral must be installed as follows:

- a) connected to the enclosure of the meter base by a bonding jumper,
- b) terminated at the service compartment of the service entrance equipment (service box),
- c) connected to the service entrance equipment enclosure by a bonding jumper, and
- d) connected to the grounding electrode by the grounding conductor.

There is no need to keep the neutral bus isolated from the enclosure in the service meter base and to run a bonding conductor from a service box back to the upstream meter base, as shown in Figure B10-5, as long as a single connection to a grounding electrode is made on the supply side of the consumer's service disconnecting means.

7) Application of Rule 4-004 22) - Ampacity of wires and cables.

Background:

Under specific conditions, Rule 4-004 22) allows the ampacities in Table 39 to be used.

Some ampacities of conductors listed in Table 39 are lower than the calculated load, and some ampacities are lower than those permitted by Rule 14-104 and Table 13.

The requirements of Rule 4-006 2) for selecting ampacities based on 60 °C column for the equipment rated not more than 100 A have been disregarded by Table 39, when service conductors to single dwellings are terminated between meter mounting devices and service entrance O/C device (where termination temperature is not marked in accordance with C22.2 No. 115).

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The Note 3 indicated in first row of the Table 39 does not exist.

Rule 8-104 2) requires that the calculated load in a circuit shall not exceed the ampere rating of the circuit.

Rule 14-104 1) requires that the rating or setting of overcurrent devices shall not exceed the allowable ampacity of the conductors that they protect, except as permitted by Table 13.

Interpretation and Direction:

The calculated load of service conductors or feeder conductors is not permitted to exceed the allowable ampacity of these conductors in conformance with Rule 8-104 2).

The rating of the selected overcurrent device is not permitted to exceed the allowable ampacity of the conductors that the overcurrent device protects in conformance with Rule 14-104 1), excepted as permitted by Table 13.

Rule 4-004 22) does not provide the “notwithstanding” clause for the foregoing Rules, and the provisions of Rule 4-004 22) cannot override the fundamental safety requirements of Rule 8-104 2) and Rule 14-104 1), therefore, Table 39 is permitted to be used, provided that all applicable requirements of Rules 8-104 and 14-104 are met.

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