



Technical Corner

Electrical alterations in dwelling units and AFCI requirements

Although ESA strongly recommends improving safety by adding arc fault circuit protection for existing wiring, the following questions and answers have been provided for direction to meet inspection requirements, when performing electrical alterations in dwelling units.

For more information on Arc Fault circuit interrupters please see Bulletin 26-18-*

Question 1

If one or more receptacles is added to an existing circuit and the existing branch circuit ahead of the new receptacles is not altered, are you required to install Arc Fault circuit protection on the extension of the branch circuit?

Answer:

Yes. Arc fault protection is required for the extension of the branch circuit. *An outlet branch circuit (AFCI receptacle/ dead front) is required to be installed at the first receptacle on the extension of the circuit. Metal raceway, armoured cable, or non-metallic conduit or tubing shall not be required between the panel and the AFCI device. This is also applicable to the addition of a new receptacle at the furnace (on an existing branch circuit) to plug in associated equipment (such as condensate pumps, humidifiers, etc.).*

Note: ESA recommends that an AFCI breaker be installed on the circuit.

Question 2

If a service or panel is replaced, *relocated* or upgraded and there are no *receptacles added* to the existing branch circuit wiring, is Arc Fault circuit protection required to be installed for the existing branch circuits?

Answer

No, when the service *or panel* is upgraded, *relocated* or replaced, AFCI protection does not need to be installed. The current Code requirement for AFCI protection does not retroactively apply to the existing branch circuit wiring unless the *branch circuit is being extended with additional receptacles*. See Question above for direction when adding receptacles to existing branch circuits.

Rationale

Notwithstanding the requirements of Rule 26-724(f), the existing circuits are not extended with receptacles as part of the installation (replaced, relocated or upgraded panel), and may contain a mix of receptacles as well as smoke and or carbon monoxide detectors, which are prohibited from being on a AFCI protected circuit (see note below). It would be very difficult to determine which, if any, existing branch circuits would meet the eligibility of 26-724(f)

Note:

ESA recommends that arc fault circuit interrupter protection be provided for existing wiring.

In many older homes a smoke detector may be connected to a branch circuit that also supplies other receptacles; Notwithstanding Rule 32-110 it shall be permitted for a smoke detector to be supplied by a branch circuit that is protected by an AFCI device when the smoke alarms have battery backup in compliance with the Ontario Building Code. Please refer to Bulletin 32-3-*. This permission facilitates the installation of AFCI for existing wiring.

For more information on Arc Fault circuit interrupters please see Bulletin 26-18-*

For more information on inspection requirements when performing electrical alterations in dwelling units Bulletin 26-29-*

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