April 23, 2024

Bryan Dale Robinson, CBO
City of Raleigh
Chief Building Official

The following statements are provided in response to a request for a formal interpretation of section 210.12(D) of the 2020 State Electrical Code. The original request (Appendix E) is attached.

This interpretation uses terminology that has particular meaning in the National Electrical Code (NEC). References to the NEC are specific to the First Edition that is published by the National Fire Protection Association (NFPA) unless otherwise noted. The North Carolina State Electrical Code (State Electrical Code) consists of the First Edition NEC for a certain publication year with State Amendments that have been adopted by the North Carolina State Building Code Council (Building Code Council).

All "Questions and Answers" of this interpretation are designed to be read together as part of a complete document.

Question 1:
When does the exception in section 210.12(D) apply?

Answer 1:

> **2020 State Electrical Code (2020 NEC with State Amendments)**
> **210.12(D)**
> **(D) Branch Circuit Extensions or Modifications — Dwelling Units, Dormitory Units, and Guest Rooms and Guest Suites.** Where branch circuit wiring for any of the areas specified in 210.12(A), (B), or (C) is modified, replaced, or extended, the branch circuit shall be protected by one of the following:
> (1) By any of the means described in 210.12(A)(1) through (A)(6)
> (2) A listed outlet branch-circuit-type AFCI located at the first receptacle outlet of the existing branch circuit

> *Exception: AFCI protection shall not be required where the extension of the existing branch circuit conductors is not more than 15.24 m (50 ft) and does not include any additional outlets or devices, other than splicing devices. This measurement shall not include the conductors inside an enclosure, cabinet, or junction box.*

When an extension of a circuit is taking place, there are two conditions that must be satisfied for the exception in section 210.12(D) to apply:

1. the existing branch circuit is not extended more than 50 feet; and
2. the existing branch circuit does not include and additional outlets or devices.

Question 2:
If a branch circuit conductor is being extended less than 50 feet in order to relocate existing receptacle outlets to another location (regardless of whether or not the receptacle outlets are new or are a reuse of the existing receptacle outlets), and the number of receptacle outlets is the same prior to and after the branch circuit conductor is extended, is AFCI protection required in that scenario pursuant to Section 210.12(D) or otherwise?

Answer 2:
The relocation of an existing receptacle outlet to another location is a modification to the existing branch circuit wiring. The modification of an existing branch circuit wiring is generally required by section 210.12(D) to possess AFCI protection, depending on the location of the outlet. The exception in section 210.12(D) is specific to extending existing branch circuit conductors. There is nothing in the language of the exception that implies the inclusion of additional circuit modifications such as relocating receptacle outlets. Therefore, AFCI protection would be required for relocating receptacle outlets on circuits that are regulated by section 210.12(D).

Question 2a:
If the answer to question 2 is yes, then in what circumstances, aside from relocating a panelboard, can a branch circuit conductor be extended less than 50 feet and not require AFCI protection? Does every extension of a branch circuit conductor to relocate an existing receptacle outlet from one location to another require AFCI protection?

Answer 2a:
The requirements to provide AFCI protection in the NEC began in the 2002 version. Until the 2014 NEC was published, there were no exceptions to AFCI requirements for extending existing branch circuits.

The original petition to include an exception to section 210.12(D) (originally 210.12(B) in the 2014 NEC) was accepted in part by the Code Making Panels in the 2014 NEC. The original petition provides both the original text by the petitioner and a statement of substantiation to explain the intent behind the code change. The original petition is found below and found on page 81 of the attached Report on Proposals.

The original text of the petitioner was specifically omitting “any added outlets” on the circuit as a qualification to apply the exception. Though the final language of the NEC uses the phrase “additional outlets”, the intent was to prohibit adding outlets to the circuit being extending which includes relocated receptacle outlets. Additionally, the petitioner explains in his substantiation that the need of the exemption was specifically for relocation of panelboards. There are no other reasons given from the petitioner or the Code Making Panel to suggest the intent of exception was to include anything other than relief from AFCI requirements when relocating panelboards.

Other circumstances may use the exception without being specific to the intent if the scenario qualifies and unless such circumstances are contrary to the intent. The State Electrical Division contends that it was neither the intent nor the published language of the NEC that allows a relocated receptacle outlet to use the exception in section 210.12(D). Therefore, AFCI protection would be required for relocating receptacle outlets on circuits that are regulated by section 210.12(D).

Report on Proposals – June 2013 **NFPA 70**

2-115 Log #536 NEC-P02 **Final Action: Accept in Principle (210.12(B))**

Submitter: Dennis Alwon, Alwon Electric Inc.
Recommendation: Add new text to read as follows:
Exception: Where extension of the branch circuit does not include any added outlets or devices.
Substantiation: Often times when changing a service in an older home the branch circuit conductors do not reach the new location of the panel. The wire is sometimes just spliced inside the panel to reach the termination points while other times the circuit may need to be extended a short distance to reach the new location. Since many areas are inspecting this differently

throughout the country this exception would clarify this section and bring uniformity throughout.

Panel Meeting Action: Accept in Principle

Revise the proposed wording to read as follows:

"Exception: AFCI protection shall not be required where the extension of the existing conductors is not more than 1.8 m (6 ft.) and does not include any additional outlets or devices."

Panel Statement: The revised wording provides clarity and satisfies the intent of the submitter.

Question 3:

Does the exception in Section 210.12(D) only apply to the extension of existing branch circuits when relocating a panelboard and no other scenario?

Answer 3:

As stated in Answer 2 of this document, other circumstances that were not necessarily intended at the time of creating the language in section 210.12(D) may arise and are not prohibited from using the exception. However, such circumstances shall not violate the requirements detailed in Answer 1.

An example of a scenario unrelated to panelboard alterations includes where a room configuration is altered, and the supply side of a circuit is rerouted. Another example is when the circuit conductors are damaged, and a jumper wire is installed along with two junction boxes to bridge the two ends.

Joseph Daniel Starling, PE
Division Chief of Engineering | Field Operations
Deputy State Fire Marshal

North Carolina
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.397.6159

Raleigh

March 28, 2024

David Rittlinger, PE
Chief Code Consultant
NC Department of Insurance
1429 Rock Quarry Road, Suite 105
Raleigh, North Carolina 27610
david.rittlinger@ncdoi.gov

VIA EMAIL AND US MAIL

RE: Request for Formal Interpretation

Mr. Rittlinger:

Please find enclosed a request for a formal interpretation by NCDOI of the 2020 National Electrical Code (with North Carolina Amendments), Section 210.12(D).

Please let me know if you have any questions or would like to discuss further.

Sincerely,

Bryan Dale Robinson, CBO
Bryan Robinson
City of Raleigh
Chief Building Official

Cc: Jason Ruff, Assistant Department Director, Planning and Development
Catherine Hill, Senior Associate City Attorney

Attachment.

APPENDIX E
APPEALS
NORTH CAROLINA
BUILDING CODE COUNCIL

1429 Rock Quarry Road, Suite 105
Raleigh, North Carolina 27610
(919) 647-0008
david.rittlinger@ncdoi.gov

APPEAL TO NCDOI/NCBCC **Hearing Date** _____ / _____ / _____

GS 153A-374, GS 160A-434	GS 143-140, GS 143-141
Formal Interpretation by NCDOI X	Appeal of Local Decision to NCBCC_____
Appeal of Local Decision to NCDOI_____	Appeal of NCDOI Decision to NCBCC_____

APPELLANT Bryan Robinson **PHONE (** 919 **)** 996 **-** 2445 **x** _____
REPRESENTING City of Raleigh
ADDRESS One Exchange Plaza Suite 500
CITY Raleigh **STATE** NC **ZIP** 27601
E-MAIL bryan.robinson@raleighnc.gov **FAX (** _____ **)** _____ **-** _____

North Carolina State Building Code, Volume 2020 NEC **- Section** 210.12 (D) Exception

REQUEST ONE:
[X] **Formal Interpretation by NCDOI**
[ ] **Appeal of Local Decision to NCDOI**
[ ] **Appeal of Local Decision to NCBCC**
[ ] **Appeal of NCDOI Decision to NCBCC**

Type or print. Include all background information as required by the referenced General Statutes and the attached policies. Attach additional supporting information.

See Attachment

REASON:

See Attachment

APPEAL TO NCDOI/NCBCC

Signature Bryan D Robinson **DATE:** 03/28/2024 **FORM 3/14/17**

ATTACHMENT TO APPENDIX E

The City of Raleigh (the "City") is seeking a formal interpretation of the 2020 National Electrical Code (with North Carolina Amendments), Section 210.12(D), which states as follows:

> **"AFCI protection shall not be required where the extension of the branch circuit conductors is not more than (50 ft.) and does not include any additional outlets or devices, other than splicing devices."**

The application of this section recently came into question with respect to improvements to an existing hotel building with sleeping units or guest rooms and suites with existing kitchenettes in each room (113 units total). The scope of work included replacing the existing kitchenette and countertop in each room, with no re-configuration of space in any unit or anywhere in the building. As part of that work, an existing branch circuit was extended and an existing outlet was relocated approximately 4-5 ft. from its existing location. The number of outlets is the same before and after the work. Since no additional receptacle outlets or devices were added and the existing receptacle outlet was only relocated, it was the City's belief that the exception found in Section 210.12(D) applied and, thus, AFCI protection was not required. It should be noted that the relocated outlet was replaced with new equipment of single gang box and receptacle.

Prior to issuing a CO for this project, the City was informed by Ben Wesley, Assistant Chief Electrical Code Consultant, that the NC State Electrical Division interprets Section 210.12(D) to require AFCI protection in the above-described scenario. A copy of Mr. Wesley's informal interpretation is attached hereto. Per Mr. Wesley's interpretation, Mr. Wesley reads the phrase "additional outlets or devices" to mean "new outlets or devices" and to require AFCI protection every time an existing receptacle outlet is relocated, regardless of how far the branch circuit conductors are extended. Mr. Wesley also states in his interpretation that the exception in Section 210.12(D) is most commonly intended to apply to the extension of existing branch circuits when relocating a panelboard. Mr. Wesley also states that the exception in Section 210.12(D) can apply when cable or the conductors between two outlets need to be extend for a variety of reasons; however, there is no further explanation as to what those reasons may be, aside from relocating a panelboard.

Due to the impact that this interpretation may have on projects in the future, the City would like to obtain a formal interpretation from NCDOI as to how Section 210.12(D) applies. Specifically, the City requests a formal interpretation as to the following questions:

1. When does the exception in Section 210.12(D) apply?

2. If a branch circuit conductor is being extended less than 50 feet in order to relocate existing receptacle outlets to another location (regardless of whether or not the receptacle outlets are new or are a reuse of the existing receptacle outlets), and the number of receptacle outlets is the same prior to and after the branch circuit conductor is extended, is AFCI protection required in that scenario pursuant to Section 210.12(D) or otherwise?

    a. If the answer to question 2 is yes, then in what circumstances, aside from relocating a panelboard, can a branch circuit conductor be extended less than 50 feet and not require AFCI protection? Does every extension of a branch circuit conductor to relocate an existing receptacle outlet from one location to another require AFCI protection?

3. Does the exception in Section 210.12(D) only apply to the extension of existing branch circuits when relocating a panelboard and no other scenario?

Thank you in advance for your assistance with this matter. Please let me know if you need any additional information or would like to discuss.

Robinson, Bryan

From:	Wesley, Ben <ben.wesley@ncdoi.gov>
Sent:	Monday, March 25, 2024 7:47 AM
To:	Whittington, Samuel A; Robinson, Bryan; Scerenscko, James
Cc:	Thomas, Daniel J; Faucette, Christopher S; Whittaker, Janet; Green, Tommy W; Berggren, Ryan
Subject:	Interpretation of Section 210.12(D) of The 2020 State Electrical Code

Good morning,

The following interpretation is in regard to branch circuit conductors extended to new and/or additional receptacle outlets in question. In the specific case at hand, there were also new luminaries installed within the kitchens underneath the shelves. I will assume that we are all in agreement that since these did not exist before the renovation, and the conductors and equipment were not relocated but added new, we are all in agreement that AFCI protection is required for these. If not, please feel free to reply disputing this requirement.

This interpretation addresses the question(s) regarding the requirements for arc-fault circuit-interrupter (AFCI) protection for branch circuit extensions based on the 2020 State Electrical Code, including its related Amendments. The specific question is; is AFCI protection required when the total number of receptacles, whether old, new or a combination of these remain the same after the installation is complete.

Issue 1- When is AFCI protection required per section 210.12(D) based on the 2020 State Electrical Code for extension of a branch circuit?

Answer 1- Based on Section 210.12(D), AFCI protection is required "[w]here branch circuit wiring for any of the areas specified in 210.12(A), (B), or (C) is modified, replaced, or extended, the branch circuit shall be protected by one of the following:

(1) By any of the means described in 210.12(A)(1) through (A)(6), or (2) A listed outlet branch-circuit-type AFCI located at the first receptacle outlet of the existing branch circuit." As we are aware, North Carolina has an amendment to the exception found in this Section which states *"[A]FCI protection shall not be required where the extension of the existing branch circuit conductors is not more than 15.24 m (50 ft) and does not include any additional outlets or devices, other than splicing devices. This measurement shall not include the conductors inside an enclosure, cabinet, or junction box."*

Issue 2- If an area has three existing receptacle outlets and two of these receptacle outlets are removed, the branch circuit conductors are extended to a new location, and two new receptacle outlets are installed, since the total number of receptacles remained the same, does this meet the allowance found in the exception that requires that no additional outlets can be added that permits the avoidance of installing AFCI protection?

Answer 2- It is the opinion of the NC State Electrical Division that this scenario does not permit the omission of AFCI protection for the branch circuit extension. In the scenario described above, the total number of receptacle outlets did not increase, but for the two new receptacles, the conductors installed are new, as are the new outlet enclosures, and receptacle outlets.

This requirement is located in Article 210 which deals specifically with branch circuits. This term is defined in Article 100 as "[t]he circuit conductors between the final overcurrent device protecting the circuit and the outlet(s)." In this scenario, the additional outlets are the new receptacle outlets that were installed in a new location. In order for AFCI protection to not be required, two separate requirements shall be met. First, the total length of the new conductor or cable shall not exceed fifty feet not including the conductor or cable within the enclosure(s) and no additional outlets or devices shall be installed. Even if the new cable or conductors do not exceed fifty feet, these new conductors or cables do supply new (additional) receptacle outlets.

Example: A contractor had a scope of work to rewire an existing bedroom. This bedroom had 5 receptacles existing within the room. The contractor removed all the conductors feeding these receptacles within this room back to the first outlet. The contractor then rewired the bedroom and at the end of the renovation there was still only 5 receptacles, but all the cables and conductors are new, with new receptacle boxes and receptacle outlets installed. Even though the number did not change, all the components are new and newly installed. The purpose of this exception, both from the NEC and amended by North Carolina is so that either a cable or the conductors between two outlets need to be extended for a variety of reasons, or more commonly, the location of a panelboard is relocated. In these instances, no additional (new) outlets are added, only the conductors or cables are extended to a new location not exceeding fifty feet.

Lastly, the AFCI protection at a minimum is required to be located at the point where the extension is made. As required in 210.12, this device must be located in a readily accessible location. If the point of extension is not readily accessible, then an overcurrent device meeting these requirements may need to be installed within the panelboard serving the branch circuit.

Benjamen (Ben) Wesley
State Electrical Inspector
Assistant Chief Electrical Code Consultant

North Carolina
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.532.4175