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DEPARTMENT OF COMMUNITY AFFAIRS
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PHILIP D. MURPHY
Governor

LT. GOVERNOR SHEILA Y. OLIVER
Commissioner

February 24, 2023

RE: GFCI incompatibility with certain types of HVAC equipment

Dear Construction Official:

In October of 2022, the Code Assistance staff alerted you and your electrical subcode official(s) to this issue via a Construction Code Communicator (CCC) article, "Tentative Interim Amendments (TIAs) 13 and 19 - Where are We?" on page 21 of the fall 2022 edition <https://www.nj.gov/dca/divisions/codes/resources/ccc.html> (attached). To be specific, as jurisdictions throughout the country adopted the 2020 National Electrical Code (NEC – NFPA 70), it was discovered repeated tripping of GFCI breakers on newly installed HVAC units, tracing it to GFCI device incompatibility with certain types of HVAC equipment. As more reports came in from builders, contractors, and inspectors of A/C units repeatedly shutting off, NFPA decided to postpone enforcement of Section 210.8(F) with the development and approval of TIA-13. This TIA added to the body of text that this requirement would become effective on January 1, 2023. TIA-19 was crafted understanding that these issues still exist, so the text from TIA-13 which postpones enforcement for GFCI on HVAC equipment was moved to create an Exception 2, and the enforcement date was moved again, this time to September 1, 2026.

NFPA, through two TIAs, have demonstrated that this item should not have been added to model code until compatibility issues were resolved. As the CCC article noted, the six-month grace period did buy some time but did not permit the DCA to propose a timely fix, such as TIA-19, by last day of March 5, 2023. The Department does intend to adopt this TIA within N.J.A.C. 5:23-3.16 to extend the enforcement date of this item at 210.8(F). Until that time, please continue to approve plans designed in accordance with the 2020 NEC and TIA-19 (attached).

Sincerely,

Edward M. Smith

Director

Division of Codes and Standards



Tentative Interim Amendments 13 and 19 – Where are we?

As you know, the 2020 edition of the National Electrical Code (NEC, aka NFPA 70) is now adopted as of September 6, 2022, for new construction projects. Within that adoption, the first nine Tentative Interim Amendments (TIA) were included. If you don't already have TIA 1-9 printed in your books, please be sure to add them. Since the initial review of the 2020 NEC by the Department, 11 more TIAs have been added. All 20 can be viewed at <https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/Codes-and-Standards>.

As discussed in the Summer 2021 CCC, an issued TIA automatically becomes a part of the next edition of the standard and is then subject to all of the procedures of the standards development process. This means that the 20 TIA would be included in the 2023 NEC. In a perfect world, NFPA would follow this process, and all TIAs would be held until the next edition of the code. This would make the code uniform and predictable.

However, this is not the case. If you look at the back of the cover page in your NEC, you will see the list of TIA that have been published within your book. The purpose of this article is to discuss two TIA which have been published revising Section 210.8(F), Ground-Fault Circuit-Interrupter Protection for Personnel, Outdoor Outlets, TIA 13 and 19:

- TIA-13 -- https://www.nfpa.org/assets/files/AboutTheCodes/70/TIA_70_20_13.pdf
- TIA-19 -- https://www.nfpa.org/assets/files/AboutTheCodes/70/TIA_70_20_19.pdf

As you will see, both TIAs relate to HVAC equipment. The issue came to light after several jurisdictions that adopted the 2020 NEC discovered repeated tripping of GFCI breakers on newly installed HVAC units, tracing it to GFCI device incompatibility with certain types of HVAC equipment. As more reports came in from builders, contractors, and inspectors of A/C units repeatedly shutting off, NFPA decided to postpone enforcement of Section 210.8(F) with the development and approval of TIA-13. This TIA added to the body of text that this requirement would become effective on January 1, 2023. TIA-19, was crafted understanding that these issues still exist, so the text from TIA-13 which postpones enforcement for GFCI on HVAC equipment was moved to create an Exception 2, and the enforcement date was moved again, this time to September 1, 2026.

From the above, it's clear that this item should not have been added to model code until compatibility issues were resolved. But that was not the case, so here we are trying to inform you on the next steps. It is worth noting that we are in the six-month grace period between the 2017 and 2020 NEC, so all projects involving this type of work should be permitted to utilize the 2017 text for this requirement. The Department will follow up with a code change proposal to acknowledge and adopt the final TIA on this subject, TIA-19, within NJAC 5:23-3.16.

Source: Scott Borsos
Code Assistance Unit
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Identifying Anodeless Risers

It has been brought to our attention that there are installers supplying and installing what they think are anodeless risers for plastic gas piping installed underground pursuant to the 2018 International Fuel Gas Code (IFGC) 403.6.1 and International Residential Code (IRC) G2414.6.1; and the 2021 IFGC 403.5.1 and IRC G2414.5.1. However, many of the risers being utilized are not actually anodeless risers. This means that they require anode bags to be placed in the ground to protect the risers. It seems many suppliers do not have the necessary anode bags in stock, and some inspectors are not requiring that the anode bag be placed in the ground before backfilling the area with the riser pursuant to the manufacturer's installation instructions. As a result, depending on the conditions of the soil, there have been risers which should have had anode bags that have corroded and are now leaking gas.

It is very easy to tell if the particular riser requires an anode bag once you know what to look for. If the riser shows plastic piping at the base of it, then it is an anodeless riser. If it does not, then it requires an anode bag. Please refer to the provided pictures to see the difference.

(Continued on next page)



Tentative Interim Amendment

NFPA[®] 70[®]

National Electrical Code[®]

2020 Edition

Reference: 210.8(F) and Exception No. 2(new)

TIA 20-19

(SC 22-8-16 / TIA Log #1653)

Pursuant to Section 5 of the NFPA *Regulations Governing the Development of NFPA Standards*, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 70[®], *National Electrical Code[®]*, 2020 edition. The TIA was processed by the NEC Code-Making Panel 2, and the NEC Correlating Committee, and was issued by the Standards Council on August 12, 2022, with an effective date of September 1, 2022.

1. *Revise paragraph 210.8(F) to read as follows:*

210.8(F) Outdoor Outlets.

All outdoor outlets for dwellings, other than those covered in 210.8(A)(3), Exception to (3), that are supplied by single-phase branch circuits rated 150 volts to ground or less, 50 amperes or less, shall have ground-fault circuit-interrupter protection for personnel. ~~This requirement shall become effective on January 1, 2023, for mini-split type heating/ventilating/air conditioning (HVAC) equipment and other HVAC units employing power conversion equipment as a means to control compressor speed.~~

Informational Note: ~~Power conversion equipment is the term used to describe the components used in HVAC equipment that is commonly referred to as a variable speed drive. The use of power conversion equipment to control compressor speed differs from multistage compressor speed control.~~

Exception No. 1: ~~Ground-fault circuit-interrupter protection shall not be required on lighting outlets other than those covered in 210.8(C).~~

Exception No. 2: ~~Ground-fault circuit-interrupter protection shall not be required for listed HVAC equipment. This exception shall expire September 1, 2026.~~

Issue Date: August 12, 2022

Effective Date: September 1, 2022

(Note: For further information on NFPA Codes and Standards, please see www.nfpa.org/docinfo)

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