



DEPARTMENT OF ADMINISTRATIVE SERVICES

PROPOSED CHANGE OF THE CONNECTICUT STATE BUILDING CODE AND FIRE SAFETY CODE

DATE SUBMITTED: 5-31-21

CODE INFORMATION

Proposed change to: ☒ Building Code ☐ Fire Safety Code

Code section(s): NEC 2020 Section 210.8 (F)

PROPONENT INFORMATION

Name: Mary E. Koban

Representing: Air-Conditioning, Heating, and Refrigeration
Institute (AHRI)

Telephone: (484) 220-3011

Email: mkoban@ahrinet.org

Address: 2311 Wilson Blvd, Suite 400

Arlington

VA

22201

Street Address

Town

State

Zip Code

PROPOSAL INFORMATION

Delete or modify section 210.8(F) concerning new requirements for GFCI protection on outdoor electrical circuits that are supplied by single-phase branch circuits rated 150 volts to ground or less, 50 amperes or less.

Proposed text change, addition or deletion (attach additional information as needed):

- (1) Delete this section in its entirety; or
- (2) Revise 210.8 (F) as follows: (F) Outdoor Outlets. All outdoor general-purpose receptacles outlets for other than dwellings units, ~~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.

Supporting data and documents (attach additional information as needed)

As of April 1, 2021, 9 of 22 states that have either adopted the 2020 NEC or are in process of adopting have deleted/modified section 210.8(F) so that it does not apply to HVAC equipment. These include OR, WA, TX, ND, SD, MA, IA, and UT. Reference documents from each of these states are accessible through the links below.

TX adopted the 2020 NEC in November 2020, however, the Texas Department of Licensing and Regulation (TDLR) issued an emergency injunction against enforcing these Section 210.8(F) requirements on 5/19/2021 (<https://www.tdlr.texas.gov/pressrelease/2021-05-20%20NEC%20delay.pdf>), while the TDLR has begun work on non-emergency rulemaking to implement this change on a permanent basis. This came about after a rash of nuisance trips of new Heating, Ventilating and Air-Conditioning (HVAC) equipment in new homes over the last month. These nuisance trips are manufacturer generic as both multiple HVAC manufacturers equipment AND multiple GFCI manufacturers product were involved.

Homeowners have experienced many nuisance trips of GFCI breakers operating with inverter-driven HVAC equipment. 100% of all inverter-driven HVAC products that are known when paired with a GFCI breaker have had nuisance tripping. In addition, the Leading Builders of America (LBA) note that single-stage and two-stage products have nuisance tripping when paired with GFCI breakers.

A Temporary Interim Amendment (TIA) request has been submitted to NFPA requesting a delay in the effective date of this requirement (as it relates to inverter-driven HVAC equipment) to allow the industry to (1) update certification requirements in UL943 and UL/CSA 60335-2-40 to address leakage current testing requirements at higher frequencies and (2) to allow manufacturers to make revisions to their equipment (both GFCI breakers and HVAC equipment manufacturers) to comply with new requirements. Another TIA request has been submitted to NFPA by the National Association of Home Builders (NAHB) on May 14, 2021 requesting a delay in implementation of these requirements for all HVAC equipment due to the nuisance tripping incidents experienced with single-stage and 2-stage equipment.

A 2020 CDC report stated, “During 2004–2018, an average of 702 heat-related deaths occurred in the United States annually.”¹ In addition, the CDC report noted 10,527 heat-related deaths in a 15-year period (702/year), or 6,220 deaths where heat was the primary factor (414/year). “Past studies have demonstrated a relationship between ambient temperatures and mortality (8). **In particular, extreme heat exposure can exacerbate certain chronic medical conditions, including hypertension and heart disease (4,5). In addition, medications that are typically used to treat these chronic medical conditions such as beta-blockers, diuretics, and calcium-channel blockers, can interfere with thermoregulation and result in a reduced ability to respond to heat stress (5).**”¹ [The CDC report statistics are significant and if the NEC code is not corrected, there is a potential nuisance trips will increase this summer.

AHRI recommends: (1) delete section 210.8(F) in its entirety when Connecticut adopts the 2020 NEC (as has been done or proposed by MA, IA, SD, and UT) or (2) modify the requirement as proposed which is text taken from OR amendment.

Reference documents:

IA: Section 210.8(F) was deleted in an amendment after adoption

<https://dps.iowa.gov/divisions/electrical-examining-board/electrical-code-updates>

MA: GFCI protection was removed for outdoor, non-receptacle outlets during the adoption process.

<https://www.mass.gov/doc/527-cmr-12-massachusetts-electrical-code-amendments/download>

ND: An exception is provided for mini-split & A/C units with DC invertors. The installer is required to fill out a form including information describing what the contractor has done to resolve the issue.

<https://www.ndseb.com/>

OR: Section 210.8(F) was modified to only apply to outdoor receptacles for other than dwelling units.

<https://www.oregon.gov/bcd/codes-stand/Documents/21oesc-table1-E-2021April.pdf>

SD: Section 210.8(F) was not adopted with the 2020 NEC.

https://dlr.sd.gov/electrical/documents/adopted_code_2020.pdf

TX: An emergency rule delayed the requirements of Section 210.8(F) effective May 20, 2021.

<https://www.tdlr.texas.gov/electricians/elec.htm>

<https://www.tdlr.texas.gov/Agendas/Commagendas/agenda051821.htm>

UT (Proposed): Section 210.8(F) is proposed to be deleted when the 2020 edition goes into effect.

<https://www.utah.gov/pmn/files/668869.pdf>

WA: The state is delaying enforcement of Section 210.8(F) until January 1, 2023.

https://lni.wa.gov/licensing-permits/_docs/Elc2011.pdf

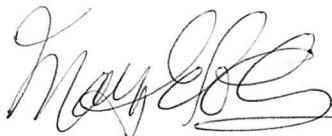
¹Heat-Related Deaths – United States, 2004-2018, Centers For Disease Control and Prevention, Morbidity and Mortality Weekly Report, Vol. 69, No. 24, June 19, 2020. Page 732
<https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6924a1-H.pdf>

- ☒ **This Proposal is original material.** (Note: Original material is considered to be the submitter's own idea based on or as a result of his/her own experience, thought or research and, to the best of his/her knowledge, is not copied from another source.)
- ☐ **This Comment is not original material, its source (if known) is as follows:** (such as material / code development proposal from a prior development cycle or proposal submitted to model code committee etc.)
- ☐ **I would like to make an in-person presentation of my proposal.**

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Proponent's Signature



Printed Name: Mary E. Koban

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*Department of Administrative Services
Office of the State Building Inspector
450 Columbus Boulevard, Suite 1303
Hartford, CT 06103
Tel: 860-713-5900 Fax: 860-713-7410
Affirmative Action/Equal Opportunity Employer*

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