The Commonwealth of Massachusetts
Executive Office of Public Safety and Security
Board of Fire Prevention Regulations
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Advisory Committee on the Massachusetts Electrical Code

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THE MASSACHUSETTS ELECTRICAL CODE

527 CMR 12.00

AS VOTED
JANUARY 19, 2023

ADVISORY COMMITTEE SECRETARY'S NOTES:

This report is intended to assist users and instructors in locating, reviewing the substantiation, and applying the changes made in the Massachusetts amendments to the 2023 edition of the NEC.

Changes subsequent to 1 January 2020 are indicated with gray highlighting and bullets for revisions and deletions, respectively. The gray highlighting accords with the current NEC style convention. New CMR 12 amendments and full paragraph insertions carry a bold, italicized ***"N"***, also following NEC style.

Numerical designations preceded by the letter "I" indicate changes to the 2020 Code already in effect on an interim basis prior to the above vote, if any, together with their effective dates, and are contained in Appendix One. In this case, two interim changes were made.

Numerical designations preceded by the letter "P" indicate changes accepted by the Advisory Committee in preparation for the above vote, by proposal number, and the Committee report thereon is contained in Appendix Two. The Committee acted on a total of fifty eight proposals in the current cycle.

Numerical designations preceded by the letter "C" indicate changes accepted by the Advisory Committee after publication of its proposed revisions and in response to public comment received thereon, as recorded in Appendix Three. The Committee acted on a total of ten written comments and six verbal comments (summarized under the heading of Comment 23-C11) in the current cycle.

Numerical designations preceded by the letter "B" indicate changes made by the Board of Fire Prevention Regulations at the time of adoption that differ from the Advisory Committee's recommendations to the Board. These changes, in this case supported by subsequent Advisory Committee action, are recorded in Appendix Four. The Board made one such change in this cycle to remove an unintended loophole in a Committee action, as supported by the Committee leadership..

THE MASSACHUSETTS ELECTRICAL CODE, 2023 NEC

ADVISORY COMMITTEE ON THE MASSACHUSETTS ELECTRICAL CODE

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The Electrical Code Advisory Committee would like to dedicate this edition of the Massachusetts Electrical Code to the memory of William F. Laidler, former Inspector of Wires member of the BFPR and Chair of the Electrical Code Advisory Committee for his exemplary service to the Commonwealth and to the electrical industry and W. Jeffery Cox, Electrical Engineer member of the BFPR, Chair of the Electrical Interpretations Committee and a member of the Electrical Code Advisory Committee for their exemplary service to the Commonwealth and to the electrical industry.

527 CMR 12.00: MASSACHUSETTS ELECTRICAL CODE
(AMENDMENTS)

The Massachusetts Electrical Code (527 CMR 12.00) of the Board of Fire Prevention Regulations (BFPR) shall
P-01> be the 2023 National Electrical Code, as published by the National Fire Protection Association (NFPA) as NFPA 70 in the form released by vote of the NFPA Standards
P-1> Council on August 12, 2022, including all modifications made by the BFPR and duly promulgated from time to time in the Code of Massachusetts Regulations. Amendments made by NFPA subsequent to this date have no force or effect until and unless reviewed and promulgated by the BFPR.

Informational Note: The NFPA releases Tentative Interim Amendments (TIAs) from time to time to its standards, including NFPA 70, (NEC). True to their title, these changes are tentative, they are of an interim nature, and they amend (in this case) the electrical code. They have not been processed through the NFPA normal standards making process. As of the 2020 NEC cycle, these amendments, subsequent to their release, now appear in all renditions of the NEC, both print and electronic, in a form that makes them visually indistinguishable from unamended text.

The NEC version adopted in Massachusetts will be that found in the first printing in book form, and that rendition will include TIAs adopted by the Standards
P-01> Council at its August 10th-12th, 2022 meeting, but no others. Users of this code are advised to consult the front matter on the first page of the NEC for a list of TIAs issued by NFPA, organized by location and specified dates of issuance. In addition, the inside front cover now
P-01> includes a clear designation of the printing and the TIAs (by number only) that are included. Specific information for each will be found on the NFPA website (www.nfpa.org/70). The NEC version in effect in Massachusetts will usually vary, increasingly over time, from the version amended by NFPA depending on the timing of BFPR actions subsequent to initial promulgation.

NFPA also issues advisories of errata. These reflect errors in printing, and bring the published version of their standards, including the NEC, into agreement
P-01> with the actual results of the standards development process. Because the legally enforceable standard is the form as developed through that process, errata are considered to be effective as of the original issuance of the standard, and therefore are considered effective in Massachusetts as of the date of the original promulgation of this code.

Insert the following provisions ahead of the body of the Code:

Rule 1. All installations, repairs, maintenance, and removal of electrical wiring and electrical fixtures used for light, heat, power, signaling and communications purposes in buildings and structures subject to the provisions of M.G.L. c. 143 shall be reasonably safe to persons and property.

Rule 2. Conformity of installations, repairs, maintenance and removal of electrical wiring and electrical fixtures used for light, heat, power, signaling and communications with applicable regulations set forth in the Code, which is hereby filed with the Secretary of the Commonwealth shall be considered as complying with these requirements.

Rule 3. Additions or modifications to an existing installation shall be made in accordance with this Code without bringing the remaining part of the installation into compliance with the requirements of this Code. The installation shall not create a violation of this Code, nor shall it increase the magnitude of an existing violation.

Rule 4. Where an actual hazard exists, the owner of the property shall be notified in writing by the authority enforcing this Code. The notification shall contain specifications of the actual hazard that exists, together with a reference to the rule of this Code that is now in violation. (See M.G.L. c. 166, §§ 32 and 33, for enforcement authority.)

Rule 5. References are made in this code to other standards. Those standards, where duly adopted by law or regulation, may be enforced by the appropriate official. They are not considered part of this Code and they are not enforceable under M.G.L. c. 143 § 3L. For Massachusetts Building Code references, see Appendix A.

Rule 6. The approving authority may be guided in his approval of specific items of equipment and materials contemplated by the Code, by proof that such equipment and materials have been tested and conform to suitable recognized industry standards.

Rule 7. 527 CMR 12.00 shall be effective on all
P-02> installations for which a permit has been
C-01> granted subsequent to February 28, 2023.

Rule 8. In accordance with the provisions of M.G.L. c. 143 § 3L, the permit application
P-03> form to provide written notice of installation of wiring shall be uniform throughout the Commonwealth, and applications shall be filed on the prescribed form. Electronic transmittals of this form may be sub-
P-03> mitted when done in accordance with the Uniform Electronic Transactions Act (M.G.L. c. 110G). After a permit application has been accepted by an Inspector of Wires appointed pursuant to M.G.L c. 166 §32, an electrical permit shall be issued to the person, firm or corporation stated on the permit application. Such entity shall be responsible for the notification of completion of the work as required in MGL 143 §3L.

Permits shall be limited as to the time of ongoing construction activity, and may be deemed by the Inspector of Wires abandoned and invalid if he or she has determined that the authorized work has not commenced or has not progressed during the preceding 12-month period. Upon written application, an extension of time for completion of work shall be permitted for reasonable cause. A permit shall be terminated upon the written request of either the owner or the installing entity stated on the permit application.

Rule 9. Installations, repairs, maintenance, or removals covered by 527 CMR 12.00 shall also comply with M.G.L. c. 141.

Rule 10. Electrical installations, repairs, maintenance, or removals shall not be concealed or covered from view until inspected by the inspector of wires within and not more than 24 hours for exterior or interior excavations nor more than 72 hours for exterior or interior installations after proper notice to the inspector, Saturdays, Sundays, and holidays excluded.

Rule 11 . Electrical installations that appear incompatible with GFCI protection as covered
N in 210.8 Exception of this Code, regard-
I-02> less of the code requirements in effect at the time when the permit as described in Rule 8 was issued, or when the installation was completed, shall be inspected by a qualified person. The inspection shall review all field elements of the branch-circuit equipment grounding return path, and the quality of any field-accessible cord connections if applicable. The inspection shall be documented, subject to audit by the Inspector of Wires, and inspected by him or her as deemed necessary. Installations of listed equipment that, under normal operating conditions, are found to be incompatible with GFCI protective devices as made available by the manufacturer of the circuit protection currently installed shall be excused from providing GFCI protection. If not connected to an individual branch circuit, incompatible equipment shall be directly wired or connected to a single receptacle, and the circuit shall be arranged so required GFCI protection is retained for the remaining outlets. The inspection documentation required by this rule shall constitute the notice required in Rule 8 and no additional notice shall be required for corrections applied accordingly. The location and the date of this determination shall be forwarded to the Department of Fire Services for inclusion in a central registry of such allowances. The report shall also include the appliance manufacturer and model, together with the identity of the GFCI protective device. This rule shall expire on January 1, 2026.

90.2(D)(5). Delete (d) and revise (c) to read as follows:
P-04>

(c) Are located in legally established easements, rights-of-way, or by other agreements either designated by or recognized by the public service commissions, utility commissions, or other regulatory agencies having jurisdiction for such installations.

Informational Note: Wiring systems that are maintained by utilities and that operate under this exclusion from coverage by the Massachusetts Electrical Code include, regardless of ownership, luminaires for street and area lighting directly connected to such systems.

90.4. Revise 90.4 by replacing 90.4(A) and 90.4(B), as follows. Sections 90.4(C) and 90.4(D) remain unchanged from the NEC.

P-05>

90.4 Enforcement. This Code shall be used by the authority enforcing the Code and exercising legal jurisdiction over electrical installations. The authority having jurisdiction of enforcement of the Code shall accept listed and labeled equipment or materials

where used or installed in accordance with instructions included with the listing and labeling. The authority shall have the responsibility for deciding upon the approval of unlisted or unlabeled equipment and materials, and for granting the special permission contemplated in a number of the rules.

90.6. Revise to read as follows:

90.6 Interpretations and Appeals. To promote uniformity of interpretation and application of the provisions of this Code, interpretations may be requested from the Board of Fire Prevention Regulations. Requests for interpretation shall be in the form of a question that can receive a "Yes" or "No" answer. This in no way supersedes the right of any individual who is aggrieved by the decision of an Inspector of Wires to appeal from that decision to the Board of Electricians' Appeals in accordance with M.G.L. c. 143 §3P. The Board of Fire Prevention Regulations shall, upon the request of the Board of Electricians' Appeals, render interpretations to the Board of Electricians' Appeals.

It is customary to revise this Code periodically to conform with developments in the art and the result of experience, and the current edition of the Code shall always be used.

90.10. Add a new section numbered 90.10 to read:

90.10. References to Commonwealth of Massachusetts Codes, Regulations, and Laws. References are included in Appendix A for Building Code, Elevator Regulations, Plumbing and Fuel Gas Code, Board of Fire Prevention Regulations, Division of Industrial Safety, State Sanitary Code, Fire Safety Code, Permit Applications, and Chapters of the General Laws. See Appendix A.

Art. 100. Coordination, Selective (Selective Coordination). Revise this definition to read as follows:

Localization of an overcurrent condition to restrict outages to the circuit or equipment affected for fault current events that extend beyond 0.1 second, and accomplished by the selection and installation of overcurrent protective devices and their ratings or settings for the range of available overcurrents under such conditions, whether originating from overload, ground-fault, or short circuit, and for the full range of overcurrent protective device opening times applicable to such events.

Art. 100. Manufactured Home, Informational Note No. 2. Add the following sentence:

P-09>

Manufactured housing that is not designed to be transportable on running gear, and that is not produced under regulations that expressly cover such housing, is classified under Article 545.

Art. 100. Occupiable Space. Insert the following definition:

N ***P-10>***

A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes or in which occupants are engaged for labor, and which is equipped with means of egress and light and ventilation facilities.

● **P-11>**

P-12>

110.14(A). Delete the last sentence of the first paragraph and insert the following two sentences in its place:

Connection by means of wire binding screws or studs and nuts having upturned lugs or equivalent shall be permitted for 10 AWG or smaller solid conductors, or conductors with Class B stranding. Where Class C stranded conductors are terminated on and not looped through such terminals, the uninsulated strands shall be completely enclosed within the termination, or the strands at the terminals shall be made solid.

110.24. Insert an additional informational note as follows:

Informational Note No. 3. The marking required in this section is useful in determining compliance with 110.9, but must be understood as transitory and requiring reconfirmation prior to the performance of additional electrical work. This and numerous other locations in the NEC require field markings of the available fault current. A major component of this current is usually that contributed by the utility through the service. The utility contribution is inherently dynamic in value, particularly on the medium voltage portions of their distributions. Without notice, automatic line sectionalizing can transfer a service from the tail end of one circuit to the head end of an adjacent circuit, with a significant increase in available fault current. In addition, there are numerous sources of on-site contributions to available fault current.

110.26(A)(1). Add a fourth paragraph (d) as follows:

(d) Adequate Accessibility. By special permission, smaller spaces may be permitted where it is judged that the particular arrangement of the installation will provide adequate accessibility.

●P-14>

210.8. Insert the following exception after the first paragraph:

N I-02>

Exception: Permanently connected equipment and cord-and-plug connected stationary equipment that is listed, but incompatible with GFCI protective devices as made available by the manufacturer of the circuit protection currently installed, shall be permitted to omit such protection provided it is installed and inspected in accordance with the provisions of Rule 11 of this Code. This exception shall expire on January 1, 2026.

210.8. Revise the second paragraph to read as follows:

For the purposes of this section, when determining distance from receptacles the distance shall be measured as the shortest path the supply cord of equipment connected to the receptacle would follow without piercing a floor, wall, ceiling, fixed barrier, or without passing through a cabinet door opening, doorway, or window.

210.8(A)(7). Revise to read as follows:

(7) Sinks — where receptacles are installed within 1.8 m (6 ft) from the top inside edge of the bowl of the sink, or where located within a cabinet supporting a sink.

210.8(B)(7). Revise to read as follows:
P-19>

(7) Sinks — where receptacles are installed within 1.8 m (6 ft) from the top inside edge of the bowl of the sink, or where located within a cabinet supporting a sink.

210.8(F). Delete this requirement.
P-22>

210.12(B) Replace the parent text and list items with the following:

All 120-volt, single-phase, 15- and 20-ampere branch circuits supplying outlets or devices installed in dwelling units shall be protected by any of the means described in 210.12(A)(1) through (A)(6)

210.21(B). Insert a new fifth paragraph as follows:
P-23>

(5) Receptacle Outlets on Individual Branch Circuits. A receptacle outlet installed to comply with a requirement for an individual branch circuit shall contain a single receptacle, or a multiple receptacle if, and then only to the extent that, the supplied equipment includes multiple supply cord connections.

210.25(B). Add an exception as follows:

Exception: Branch circuits supplying lighting outlets in common areas on the same floor as a dwelling unit in a new or existing two-family or an existing three-family building shall be permitted to be supplied from equipment that supplies one or more of those dwelling units.

210.52(A)(2)(1). Revise as follows:
P-24>

Any space 600 mm (2 ft) or more in width (including space measured around corners) and unbroken along the floor line by doorways, fireplaces, stationary appliances, and similar openings

210.52(A)(4). Delete in its entirety.

210.52(C). Make the following three revisions:
P-25>

I. Revise the parent language to read as follows:

In kitchens, pantries, breakfast rooms, dining rooms, and similar areas of dwelling units, receptacle outlets for countertop and work surfaces that are 300 mm (12 in.) or wider shall be installed in accordance with 210.52(C)(1) through (C)(3). Receptacle outlets rendered not readily accessible by appliances fastened in place, appliance garages, sinks, or rangetops as covered in 210.52(C)(1), Exception No. 1, or appliances occupying assigned spaces shall not be considered as these required outlets.

For the purposes of this section, where using multioutlet assemblies, each 300 mm (12 in.) of multioutlet assemblies containing two or more receptacles installed in individual or continuous lengths shall be considered to be one receptacle outlet.

II. Revise 210.52(C)(2) to read as follows:

At least one receptacle outlet shall be installed to serve each island and peninsular countertop of work surface, and shall be located in accordance with 210.52(C)(3). A receptacle in a wall countertop surface that directly faces a peninsular countertop or work surface shall be permitted to serve as the receptacle for the peninsular space.

III. Revise 210.52(C)(3) to read as follows:

Receptacle outlets shall be located in one or more of the following spaces:

(1) On or above, but not more than 500 mm (20 in.) above, a countertop or work surface.
(2) In a countertop or work surface, using a receptacle outlet assembly listed for the location.
(3) Not more than 300 mm (12 in.) below countertops or work surfaces on peninsular or island countertops or work surfaces where the surface is flat across its entire surface (no backsplashes, dividers, etc.) and there are no means to mount a receptacle within 500 mm (20 in.) above the countertop or work surface, such as an overhead cabinet. Receptacles installed below a countertop or work surface shall not be located where the countertop or work surface extends more than 150 mm (6 in.) beyond the face of such receptacles.

Exception to (3): Receptacle outlets shall be permitted below wall-mounted countertops or work surfaces in construction for the physically impaired.

215.15. Barriers. Revise to read as follows:

N
P-26>

Barriers shall be placed in panelboards, switchboards, switchgear, and motor control centers such that no uninsulated, ungrounded supply terminal is exposed to inadvertent contact by persons or maintenance equipment while servicing load terminations. This requirement shall be applied to the supply terminals of equipment supplied by feeder taps as covered in 240.21(B) or by transformer secondary conductors as covered in 240.21(C), in all instances where the equipment disconnecting means is located within the same enclosure, or is located remotely and also controls other loads.

220.40. Insert the following third informational note:

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P-27>

Informational Note No. 3: Beginning on January 1, 2024, cities and towns that have adopted the Specialized Stretch Energy Code will require new one- and two-family homes built with fossil fuel equipment to be pre-wired for future electrification conversion. For heating equipment, this will apply to heat pumps or to resistance heat or to both as applicable. The requirements will also extend to fossil-fueled major appliances. This will effectively require the service, and intermediate feeders if present, to be wired based on the future requirements as if it were an all-electric home at the time the home is built. In addition, where this Energy Code is in effect, the advance installation of branch-circuit wiring for all future electrical equipment that would be required to accomplish the future conversion from fossil fuel applications must be in place, routed to locations that are appropriate to meet this intent.

225.30(F). Revise to read as follows:

(F) Documented Switching Procedures. Additional feeders or branch circuits shall be permitted to supply large capacity multibuilding industrial or institutional installations under single management where documented safe switching procedures are established and maintained for disconnection.

P-28>

225.31 Exception No. 1. Revise to read as follows:

Exception No. 1: For large capacity multibuilding industrial or institutional installations under single management where documented safe switching procedures are established and maintained for disconnection, and where the disconnection is monitored by qualified individuals, the disconnecting means shall be permitted to be located elsewhere on the premises.

230.85. Make the following changes to this section:
I-1; P-29>

I. Replace the parent language with the following:

N

For one- and two-family dwelling units, an emergency disconnecting means shall be installed. This section shall apply to new one- and two-family dwellings, or new buildings of double occupancy, at least one of which is a dwelling unit. It shall also apply to two-family dwellings or buildings of double occupancy at least one of which is a dwelling unit, and newly created by subdivision of an existing one-family dwelling.

II. In 230.85(A)(1), Identify the existing exception as Exception No. 1. Insert a second exception to read as follows:

Exception No. 2: A building supplied by a service lateral or by underground service conductors shall be permitted to be capable of disconnection from a readily accessible location outside of the dwelling by using a method providing remote control of the service disconnecting means, and marked: EMERGENCY ELECTRICAL DISCONNECT and NOT SERVICE EQUIPMENT. The control wiring shall be enclosed in a raceway.

III. Revise 230.85(C) to read as follows:

This section shall apply to one- and two-family dwellings if the service(s) is (are) entirely replaced. This section shall also apply to one- and two-family dwellings if the service(s) is (are) increased in capacity in terms of its (their) rating in amperes. This section shall not apply to service equipment repairs that consist exclusively of replacement of one or more of the following components of the service equipment:

(1) Meter socket(s)
(2) Service entrance conductors
(3) Service entrance or other related raceways and fittings
(4) Main overcurrent device:

● **P-30>**

250.130(C). Delete this subsection.

P-33>

N **250.140(B).** Revise the final clause to read: "and the grounded conductor complies with list item (a)." Delete list item (5).

300.4(D). Delete this subsection.

300.5(A). Add an informational note to this subsection as follows:

Informational Note: Cables suitable for direct burial are often sleeved in various raceways for design reasons. If such cable is installed with sufficient cover for direct burial, then the characteristics of that raceway need not be evaluated. Other rules of this Code that apply to raceways generally may apply. See 300.5(H).

● **P-34>**

300.11(B). Revise this subsection as follows:

I. Delete the second sentence in 300.11(B) which reads: "Support wires and associated fittings that provide secure support and that are installed in addition to the ceiling grid support wires shall be permitted as the sole support."

II. Revise 300.11(B)(2) to read as follows:

(2) Nonfire-Rated Assemblies. Branch-circuit wiring associated with equipment that is located within, supported by, or secured to a suspended ceiling that is not an integral portion of a fire-rated floor/ceiling or roof/ceiling assembly shall be permitted to be supported by the ceiling support wires.

III. Delete 300.11(B)(2) Exception.

300.17. Add a second paragraph as follows:

Where different raceway wiring methods are joined together without a pull point at the transition, there shall not be more than the equivalent of four quarter bends (360 degrees total) between pull points, e.g., conduit bodies and boxes.

P-35>

305.15(A). In Note 4 to Table 305.15(A), insert the words "or institutional" after the word "industrial."

310.12. Delete the second paragraph.

● **P-36>**

310.15(C)(1). Delete the fourth itemized adjustment provision (d) covering AC and MC cable.

310.15(C)(1). Revise Table 310.15(C)(1) to read as follows:

Number of Conductors[1]	Percent of Values in Tables 310.16 through 310.19 as Adjusted for Ambient Temperature if Necessary
4 through 6	80
7 through 24	70
25 through 42	60
43 and above	50

[1]Number of Conductors is the total number of conductors in the raceway or cable, including spare conductors. The count shall be adjusted in accordance with 310.15(E) and (F), and shall not include conductors that are connected to electrical components but that cannot be simultaneously energized.

Informational Note: Overheating may occur where continuous, fully loaded conductor diversity is less than 50 percent and the number of current-carrying conductors exceeds nine. See 310.15(C).

314.29(A) Revise to read as follows:

N **P-37>**

(A) In Buildings and Other Structures. Boxes and conduit bodies shall be installed so the contained wiring and devices are accessible. Boxes and conduit bodies that are recessed into or behind finished surfaces of buildings shall have access to their internal contents maintained by openings in their covers and in the building finish that comply with 314.29(A)(1), (A)(2), or (A)(3) as applicable. Removable finished covers that maintain this access shall be permitted.

(1) Boxes 1650 cm3 (100 in.3) or Less in Size. The openings, if reduced from the outer walls of the box, shall be centered not more than 25 mm (1 in.) from

the centerline of the box, and shall not extend beyond the walls of the box. If rectangular, the opening shall be not less than 73 mm (2 7/8 in.) by 45 mm (1 3/4 in.) in size. If circular, the opening shall not be less than 90 mm (3½ in.) in diameter.

Exception: Smaller openings in building surfaces that accommodate one or more individual devices shall be permitted if all of the following conditions are met:

a) The outlet box that supplies the device(s) is nonmetallic.

b) The branch circuit wiring that supplies each device consists of a separate nonmetallic cable assembly originating outside the box, or conductors in a nonmetallic raceway all of which originate outside the box. Other than connections to a single device, these conductors shall not be spliced in the box, and no other wiring shall enter the box.

c) Each device shall be capable of removal from the building surface opening without being damaged. If a special tool is required for this purpose, the applicable circuit directory for the device shall record the location of the tool, together with a product code/QR code for acquiring a replacement if necessary.

d) All connections for each device to the branch circuit wiring shall be made with listed clamping-type wire connectors, which shall be supplied with the devices. The branch-circuit conductors shall be arranged to permit the connector(s) to be exposed after the device has been fully removed

e) The device(s) shall be listed for this application.

(2) Boxes Larger Than 1650 cm3 (100 in.3) in Size. The openings shall not be smaller than the outer walls of the box.

(3) Conduit Bodies. The openings shall not be smaller than outer walls of the conduit body.

320.80(A). Delete the last sentence of the first paragraph, which reads: "The 90°C (194°F) rating shall be permitted to be used for ampacity and correction calculations; however, the ampacity shall not exceed that for a 60°C (140°F) rated conductor."

334.10. Insert an exception to follow (3) to read as follows:

Exception to (2) and (3): For buildings or structures required to be of Type I or Type II construction, Type NM or Type NMC cables shall be permitted to be used, provided that where so applied in buildings or structures exceeding three stories above grade, circuits run in Type NM or NMC cable shall not leave the floor or dwelling unit from which the circuits originate. Cables shall be installed within walls, floors, or ceilings that provide a thermal barrier of material that has at least a 15-minute finish rating as identified in listings of fire-rated assemblies.

334.12(A)(2)**.** Revise to read as follows:

(2) In dropped or suspended ceilings in other than one- and two-family and multifamily dwellings, unless run so as to closely follow the surface of framing members, running boards, or the equivalent, or unless connected to luminaires or other pieces of electrical equipment in accordance with 334.30(B)(2).

334.17. Revise to read as follows:

334.17 Through or Parallel to Framing Members and Furring Strips. Types NM and NMC cable shall comply with 300.4 where installed through studs, joists, rafters, and similar members. Grommets or bushings shall be used in metal studs as required in 300.4(B)(1), shall remain in place during the wall finishing process, shall cover the complete opening, and shall be listed for the purpose of cable protection.

In both exposed and concealed locations, where the cable is installed parallel to framing members, such as joists, rafters, or studs, or is installed parallel to furring strips, the cable shall be secured so that the nearest outside surface of the cable is not less than 19 mm (¾ in.) from the nearest edge of the framing member or furring strip where nails or screws are likely to penetrate. Where this distance cannot be maintained, the cable shall be protected from penetration by nails or screws by a steel plate, sleeve, or equivalent at least 1.6 mm ($^1/_{16}$ in.) thick. A listed and marked steel plate less than 1.6 mm ($^1/_{16}$ in.) thick that provides equal or better protection against nail or screw penetration shall be permitted for this purpose.

Exception: For concealed work in finished buildings, or finished panels for prefabricated buildings where such supporting is impracticable, it shall be permitted to fish the cable between access points.

334.30. Revise 334.30 as follows [(A), (B), and (C) unchanged from the NEC]:

334.30 Securing and Supporting. Nonmetallic-sheathed cable shall be secured by staples, cable ties, straps, or similar fittings so designed and installed as to not damage the cable. The cable length between the cable entry and the closest cable support shall not exceed 450 mm (18 in.) Where staples are used for cable sizes smaller than three 8 AWG conductors, they shall be of the insulated type, or listed noninsulated staples driven by staple guns shall be permitted. Cable shall be secured in place at intervals not exceeding 1.4 m (4½ ft) and within 300 mm (12 in.) from every cabinet, box, or fitting. Where the cable is run diagonally behind strapping of a nominal 19 mm (¾-in.) thickness it shall be considered supported, secured, and in compliance with 334.17 where it is not pulled taut. For other than within 300 mm (12 in.) of a cable termination at a cabinet, box, or fitting, cables passing through successive holes in adjacent framing members no more than 600 mm (24 in.) apart shall be considered to be secured.

Sections of cable protected from physical damage by raceway shall not be required to be secured within the raceway.

334.80. Delete the second paragraph and revise the first paragraph to read as follows:

334.80 Ampacity. Type NM and NMC cable shall have conductors rated at 90°C (194°F). Where installed in thermal insulation, the ampacity of conductors shall be that of 60°C (140°F) conductors. The ampacity of Types NM and NMC cable installed in cable tray shall be determined in accordance with 392.80.

P-38>

338.10(B)(4). Insert an informational note as follows:

Informational Note: This section includes service entrance cables with a round configuration commonly known as SER cable. The interior installation of this cable is governed by the same rules as apply to nonmetallic sheathed cable.

338.10(B)(4)(a)(3). Revise to read as follows:

Where installed in thermal insulation, the ampacity shall be in accordance with the 60°C (140°F) conductor temperature rating. The maximum conductor temperature rating shall be permitted to be used for ampacity adjustment and correction purposes, if the final derated ampacity does not exceed that for a 60°C (140°F) rated conductor.

344.6. Add an exception as follows:

P-39>

Exception: Rigid metal conduit made from nonferrous metals other than aluminum shall be permitted to be approved.

● **P-40>**

352.12. Add a new (F) to read as follows:

(F) High-Rise Buildings. Where used in buildings more than 21 m (70 ft) above mean grade, rigid nonmetallic conduit shall not be used unless the building is protected by an approved fire sprinkler system(s) installed on all floors as a complete system, or the conduit is concealed behind a thermal barrier as described in 362.10(2) or 362.10(5), or the conduit is encased in not less than 50 mm (2 in.) of concrete.

368.8. Insert a new Section 368.8 in Part I of Article 368 as follows:

368.8 Tests Prior to Energizing. Busway system joint tightness, phasing and insulation resistance shall be verified by test prior to energizing the system for the first time. Joint resistance shall be evaluated by a qualified person using equipment identified for the specific function. A written record of these tests shall be made available to the authority having jurisdiction.

368.14. Insert a new Section 368.14 in Part II of Article 368 as follows:

368.14 Protection from Liquids, Moisture and Other Contaminants. Busway shall be protected from liquids, moisture, and other contaminants or corrosion which may result in electrical failure.

(A) During Construction. Indoor busways shall be protected from moisture during storage as well as during or after installation. Special consideration shall be given to riser busways to protect them from moisture from uncompleted roofs, walls, etc.

Outdoor busways shall be treated the same as indoor busways until after busway is properly installed, as it is not weather resistant until completely and properly installed.

Busway shall have the exposed ends of uncompleted runs protected to prevent accidental contamination during the construction period.

(B) Protection from Snow Buildup. Outdoor busway shall be mounted in such a manner as to prevent snow or ice buildup forcing water into the busway through weep holes. This may require that consideration be given to horizontal snow or ice buildup or drifting of snow.

(C) Protection from Falling Liquids. Slant shields, drip pans, or other approved protective shields shall be installed to protect indoor busway in locations where there is a possibility of water spillage or dripping condensate from roof drains, water pipes, and the like.

368.56(B). Revise the rule in list item (2) and the exception to (B)(2) to read as follows:

(2) The length of the cord or cable from a busway plug-in device to a suitable tension take-up support device shall not exceed 2.5 m (8 ft).

Exception to (B)(2): By special permission in industrial establishments only, where the conditions of maintenance and supervision ensure that only qualified persons will service the installation, flexible cord suitable for hard usage or extra hard usage or bus drop cable shall be permitted to extend horizontally greater lengths than 2.5 m (8 ft) where the longer length is essential for periodic repositioning of equipment. The flexible cord or bus drop cable shall be supported at intervals not to exceed 2.5 m (8 ft), and suitable tension take-up device(s) shall be installed at the end of the horizontal run to relieve strain in both the horizontal and vertical directions.

372.23. Revise this section to read as follows:

372.23. Ampacity of Conductors. The ampacity adjustment factors in 310.15(C)(1) shall not apply where 30 or fewer current-carrying conductors occupy no more than 20 percent of the interior cross-sectional area of cellular concrete floor raceways.

374.23 Revise this section to read as follows:

374.23. Ampacity of Conductors. The ampacity adjustment factors in 310.15(C)(1) shall not apply where 30 or fewer current-carrying conductors occupy no more than 20 percent of the interior cross-sectional area of cellular metal floor raceways.

N

390.23. Revise this section to read as follows

390.23 Ampacity of Conductors. The ampacity adjustment factors in 310.15(C)(1) shall not apply where 30 or fewer current-carrying conductors occupy no more than 20 percent of the interior cross-sectional area of underfloor raceways.

400.5. Revise Table 400.5(A)(3) to read as follows:

Number of Conductors	Percent of Values in Tables 400.5(A)(1) and 400.5(A(2))
4 through 6	80
7 through 24	70
25 through 42	60
43 and above	50

Informational Note: Overheating may occur where continuous, fully loaded conductor diversity is less than 50 percent and the number of current-carrying conductors exceeds nine. See 310.14(A)(3).

400.12(4) Revise the existing exception as follows:

Exception to (4): Flexible cord and cable shall be permitted to be installed in accordance with 368.56(B) and 590.4. For other applications, where the length of the cord from the supply termination to a suitable tension take-up device is limited to 2.5 m (8 ft), flexible cord shall be permitted to have one connection to the building surface.

400.17. Revise the second paragraph to read as follows:

Flexible cord shall be permitted to be installed in raceways not longer than 15 m (50 ft) in length where required to protect the flexible cord or cable from physical damage. The ampacity of the conductors within a raceway shall be adjusted in accordance with Table 400.5(A)(3) based on the total number of current-carrying conductors within the raceway, and then further derated by a factor of 0.8, or the ampacity shall be calculated in accordance with 310.14(B). The raceway shall be exposed over its entire length.

406.4(D)(3). Delete the Exception.

406.9(C). Revise the entire content to read as follows:

N **P-41>**

Receptacles shall not be installed within or directly over a bathtub or shower stall.

P-42>

410.16(D). Revise items (1) through (4) to read as follows:

(1) 300 mm (12 in.) for surface-mounted incandescent luminaires with a completely enclosed light source, or for LED luminaires not covered in (2) following, that are installed on the wall above the door or on the ceiling.

(2) 150 mm (6 in.) for surface-mounted fluorescent luminaires, or for surface-mounted LED luminaires that are factory wired with their drivers, and that are installed on the wall above the door or on the ceiling.

(3) 150 mm (6 in.) for recessed incandescent luminaires, or for LED luminaires not covered in (4) following, with a completely enclosed light source, and that are installed in the wall or the ceiling. N

(4) 150 mm (6 in.) for recessed fluorescent luminaires, or for recessed LED luminaires that are factory wired with their drivers, and that are installed in the wall or the ceiling.

410.36(B). Add a second paragraph as follows:

In addition to, or lieu of, the mechanical fastening means, luminaires equaling or exceeding 1.8 kg (4 lb) shall be directly supported to the building structure or to approved intermediate supports rigidly secured to the building structure. The luminaire support shall be by wire, chain, or threaded rod of sufficient strength to carry the luminaire. Luminaires equal to or greater than 600 mm (2 ft.), nominal, on a side shall be supported at each end of a diagonal axis regardless of weight N

P-44>

440.14. Insert a second informational note as follows :

Informational Note No. 2: Article 440 generally only applies to equipment that incorporates hermetic refrigerant motor-compressors. See also 430.109(B) for specific provisions governing the disconnecting requirements for such equipment, wherever located, that uses a motor that is 1/8 hp or less.

P-45>

517.13. Delete the exception.

517.26(. Delete (2), which would otherwise read "Section 700.10(D) shall not apply."

● **P-46>**

680.4. Delete this requirement.

680.8 Insert an informational note ahead of 680.8(A) as follows:

Informational Note: Unlisted swimming pool pump motors have been observed in the field as having been supplied by their manufacturer with undersized cords, cords of excessive length, cord connectors on outdoor applications that are unsuitable for wet locations, and other violations of this Code. The fact that a manufacturer may supply them in this form does not excuse compliance with the rules of this Code.

Listed storable swimming pool pump motors with long factory-supplied cords are prominently marked as such and are not covered in Part II of Article 680. They are not manufactured for use with permanently installed pools and they need not be bonded where used as intended. See 680.31.

● **P-50>; P-51>**

680.23(B)(2)(a). Amend this provision to read:

"(a) *Metal Conduit.* Metal conduit shall be listed stainless steel or approved red brass."

680.23(F)(1). Wiring Methods. Revise the requirement to read as follows:

Branch circuit wiring on the supply side of enclosures and junction boxes connected to underwater luminaires and running in corrosive, wet, or below-grade locations shall comply with 680.14 or shall be liquidtight flexible nonmetallic conduit. Wiring methods in dry, noncorrosive locations within or on buildings shall be selected and run in accordance with the applicable requirements in Chapter 3. Wiring in all locations shall include an insulated or covered equipment grounding conductor of a wire type, sized in accordance with 250.122 but not smaller than 12 AWG.

(Exception unchanged from the NEC.)

680.26(B)(2)(b). Insert an additional paragraph to follow the five item list and reading as follows:

"This method shall only be permitted for above-ground pools."

P-53>

680.74(A). Delete numbered paragraphs (3), (4), and (5). Delete Exception No. 1 and Exception No. 3, and designate Exception No. 2 as Exception..

690.31(D)(2). Revise the second sentence of the second paragraph to read as follows:

The labels shall be reflective, all letters shall be capitalized, and the letters shall have a minimum height of 9.5 mm (⅜ in.) in white on a red background.

690.56. Insert the following Informational Note after the section title and before 690.56(A):

Informational Note: The Massachusetts Comprehensive Fire Code, 527 CMR 1.00, requires signage adjacent to the building or service disconnect that provides contact information and identifies the party responsible for the operation of the PV system.

Article 691. Delete this article.

700.10(D). Revise as follows:

I. Insert the following title and parent wording:
Fire Protection: Emergency systems shall meet the additional requirements in 700.10(D)(1) through (D)(3).
II. Delete (D)(1); renumber (D)(2) through (D)(4) as (D)(1) through (D)(3).
III. In the resulting (D)(3) change "700.10(D)(2)" to read "700.10(D)(1).".

P-56>

P-57>

700.12(H)(2)(2)**.** In the third sentence, delete the word "also". Then delete the second sentence that reads::

Flexible cord- and plug-connection shall be permitted provided that the cord does not exceed 900 mm (3 ft) in length.

● **P-58>**

NOTE:

This version of 527 CMR 12.00, the Massachusetts Electrical Code, has been reformatted to closely parallel the style conventions of the 2023 NEC. Its content is a verbatim transcription of the text in the official version. The type size is the same as in the NEC.

*Revised content from the 2020 edition is noted with highlighting on the revised text, and deleted material with a bullet. Entirely new section amendments are identified with an "**N**" as in the NEC. All changes indicated in this printing have an effective date of March 1, 2023.*

REGULATORY AUTHORITY:
527 CMR 12.00
M.G.L. c. 22D, §4; c. 143, §3L; c. 148, §10.

APPENDIX A TO THE MASSACHUSETTS ELECTRICAL CODE†

780 CMR MASSACHUSTTS STATE BUILDING CODE
Ninth Edition

Based on the International Building Code (IBC) and the International Residential Code (IRC) 2015 editions
[Citations bracketed are amended from the model code]

Chapter 1 Scope and Administration (*Unique to Mass.*)

Basic/Commercial based on 2015 edition of the International Building Code (IBC)

[Citations bracketed are amended from the model code]
9th Edition effective date 1/1/2017

Chapter 3 Use Groups and Occupancy Classification

Various revisions to Use-Groups [307.1.1; 308.3.4; 308.6; 310.5; 310.6]

Chapter 4 Special Detailed-Requirements Based on Use and Occupancy

Chapter 7 Fire and Smoke Protection Features

Chapter 9 Fire Protection Systems
Smoke activation closing protection devices 711.5.3
Penetrations through wall 714.3.1
Penetrations membranes (outlet boxes) 714.3.2
Penetrations ceiling & floors 714.4.2
Chapter 10 Means of Egress
Illumination (complete) 1008
Electromagnetically locked egress doors 1010.1.9.9
Exit sign electrical rooms ..... [1011.1.10]
Exit signs and lights 1013
Transformer vaults (exit sign) ..... [1013.1.1]
Penetrations exit enclosures 1022.4
Chapter 12 Interior Environment
Lighting required bathrooms ..... [1205]
Venting required bathrooms ..... [1205.2.1]
Sound transmission 1207.2
Chapter 23 Wood
Alterations to trusses 2303.4.5
Cutting, notching, and boring in wood framing members walls ..... 2308.5.9&10
Cutting, notching, and boring in wood framing members ceilings 2308.7.4
Engineered wood products 2308.7.9
Chapter 26 Plastic
Lighting transmitting plastics 2606
Electrical luminaires (diffuser) 2606.7.5
Chapter 31 Special Construction
Swimming pools, spas, hot tubs (See ISPSC) ..... …….3109
Photoelectric panels and modules 3111
Chapter 33.Safeguards During Construction
Lighting 3306.7
Electrical system protection to base flood elevation ..... [Appendix G]

International Existing Buildings Code (IEBC)
2015 edition

Historic Buildings ..... Complete

International Mechanical Code (IMC)
2015 edition

Chapter 4 Ventilation ..... Complete
Chapter 5 Exhaust Systems ..... Complete
Chapter 6 Duct Systems ..... Complete
Plenums 602
Chapter 8 Chimneys and Vents ..... Complete
Vents 802
Direct-vent, integral vent, and mechanical vent systems (required smoke) ..... 804.3.8 #3

International Swimming Pool and Spa Code (ISPSC)
2015 edition

Swimming pools, alarmed access, where required 305.4
Emergency lighting, pools 321.3

International Fire Code (IFC)
2015 edition

Construction documents (security gates) 501.3
Fire protection and utility equipment identification and access (complete) 509
Standby power 510.4.2.3
Fire and smoke protection features (walls, partitions) 703.1.2

780 CMR: MASSACHUSETTS STATE BUILDING CODE
1 + 2 Family Residential based on the 2015 edition of the International Residential Code (IRC)

[Citations bracketed are amended from the model code]
9th Edition effective date 1/1/2017

Violation penalties ..... MGL c. 143 §94a R114.4
Fire resistant construction R302.4
Penetrations, membrane (outlet boxes) R302.4.2
Bathrooms (mechanical ventilation) ..... [R303.3]
Stairway illumination ..... R303.7 & 8
Automatic fire sprinkler system ..... [R313]*
Smoke alarms (listings, location and type) ..... [R314 & AJ 102.3]*
Adding or creating one or more sleeping rooms ..... AJ102.3.1]
Complete reconstruction ..... [AJ102.3.2]
Adding an attached garage (heat detector) ..... [AJ102.3.3]
Carbon monoxide alarms ..... [R315]
Adding or creating one or more sleeping rooms ..... [AJ102.3.1]
Complete reconstruction ..... [AJ102.3.2]
Flood resistant construction (Specialized Codes) ..... [R322.1.6]
Photovoltaic Systems (general design and install) ..... [R324.3]
General *(International Swimming Pool and Spa Code* ..... [R326.1]
Drilling & notching wood structural floor members R502.8
Drilling & notching engineered wood products R502.8.2
Alteration of wood trusses ..... R502.11.3 & R802.10.4
Cutting & notching metal studs & headers R603.3.4
Cutting and notching metal floor framing R505.3.5
Drilling & notching studs R602.6
Drilling & notching (SIP) walls R610.7
Appliance access M1305.1
Appliance access electrical requirements M1305.1.3.1
Water level detection device M1411.3.1.1
clothes dryer exhaust M1502.4.4
Range hoods make up air M1503.4
Electrical service, reserved space for photovoltaic systems ..... U 103.7

780 CMR 51.00: MASSACHUSETTS STATE BUILDING CODE
Chapter 13 Energy Efficiency
[based on 2018 edition of the International Energy Conservation Code (IECC)]

N referenced articles are found in 2015 IRC and are the same text
[Citations bracketed are amended from the model code]
Effective date 1/1/2020

Residential

Air leakage N1102.4 (R402.4, Table R402.4.1.1) recessed lighting N1102.4.5 (R402.4.5)
Programmable thermostat N1103.1.1 (R403.1.1)
Air inlets and exhausts ..... [N1103.6.6 (R403.6.6)]
Snow melt system control N1103.9 (R403.8)

Pool heaters ..... N1103.10.2 &3(R403.9.1&2)
Lighting equipment..... N1104.1 (R404.1)
Electric vehicle power (service) equipment (EVSE) ready (mandatory)..... [N1104.2 (R404.2)]
Hot water boiler, outdoor temperature setback control N1103.2 (R403.2)
Additions, lighting N1108.1.2 (R502.1.2)
Alterations, lighting N1109.1.4 (R503.1.4)
Solar-Ready Provisions-– Detached One- and Two-Family Dwellings, Multiple
Single-Family Dwellings (Townhouses) ..... APPENDIX RA

Energy Storage Systems One- and Two-Family Dwellings ..... Chapter 15 NFPA 855

Commercial

Rooftop solar readiness ..... [Appendix CA]
Air leakage (mandatory)..... C402.4
Recessed lighting..... C402.5.8
HVAC system controls..... C403.4
Snow melt system controls..... C403.12.2
Hot water boiler outdoor temperature setback..... C403.4.1.5
Electrical power & lighting systems (power density- complete)..... C405
General (Mandatory) ..... [C405.1]
Electric vehicle power (service) equipment capable (mandatory)..... [C405.10]
Voltage Drop Feeders and Branch Circuits ..... [C405.9]
On-site renewable energy ..... [C406.5]
Additional efficiency package options new commercial buildings use..... [C406]
New residential portions of mixed use buildings, use ..... N1106 of 2015 IRC

STRETCH ENERGY CODE

The Stretch Energy Code is the International Energy Conservation Code (IECC)
with Massachusetts Amendments: (225 CMR 22 Residential and 225CMR23 Commercial)
2021 edition
Effective dates: Residential: January 1, 2023; Commercial: July 1, 2023

International Energy Conservation Code (IECC)

Residential energy efficiency (various sections) ..... Chapter 4
Air barrier and insulation installation..... Table R402.4.1.1
Programmable Thermostat R403.1.1*
Recessed Lighting..... 402.4.5
Snow and Ice Melt Systems..... R403.9
Pools and permanent spa energy consumption (complete)..... R403.10.1 –R403.10.3
Electrical power and lighting systems (complete)..... R404
Electric Vehicle Wiring..... R404.4
Solar Ready Provisions Residential..... Appendix RB

Specialized Stretch Code*
Must be Voted on to Opt-In by Cities and Town
Vote to Take Effect after a 6 Month Phase in Period
Effective after January 1,2024
Cities and Towns may enter either January 1 or July1

Zero-Energy Residential Provisions..... Appendix RC
Al-Electric, Mixed Fuel and Passive (PHIUS) Homes
Zero-Energy Commercial Provisions ..... Appendix CC

527 CMR 1.00: COMPREHENSIVE MASSACHUSETTS FIRE SAFETY CODE based on 2021 edition of NFPA 1

Chapter 52 Energy Storage Systems
General; must also comply with NFPA 855 …….....…….…….……52.1
One & Two Family Dwellings and Townhouses…… Chapter 15 NFPA 855
Signage relative to capacitor energy storage system disconnecting means 52.1.18
Chapter 53 Mechanical Refrigeration
Refrigeration machinery rooms 53.2.3
Refrigerant vapor detection, monitoring, alarm, and electrical systems 53.2.3.1
Electrical 53.2.3.4
Signage requirements 53.2.4
Chapter 60 Hazardous Materials
Electrical wiring and equipment. (See 11.1) 60.5.1.10
Chapter 61 Aerosol Products
Electrical installations 61.2.2
Chapter 63 Compressed Gases and Cryogenic Fluids
Electrical equipment 63.2.7*
Electrically powered heating devices 63.3.1.11.7.1
Exposure to electrical circuits 63.3.1.11.10
Indoor non-bulk hydrogen compressed gas system location 63.3.6.3
Alternative to emergency power 63.3.9.5.2
Cryogenic fluids 63.4
Electrical wiring and equipment 63.4.7
Chapter 66 Flammable and Combustible Liquids
Static electricity (bonding and grounding) 66.6.5.4*
Electrical systems (See 66.7) 66.6.5.5
Electrical systems for storage tank buildings 66.24.8
Chapter 69 Liquefied Petroleum Gases and Liquefied Natural Gases
Fire protection and electrical area classification 69.5.5*
Automated cylinder exchange stations 69.5.6

The (*) indicates that explanatory material is located in Annex A.

DIVISION OF INDUSTRIAL SAFETY

454 CMR 10.00 Construction Industry Rules and Regulations
Tunnels and Shafts, Caissons, Cofferdams, and Compressed Air
10.175 Tunnels and Shafts
Electrical Equipment ..... Section 12
10.178 Compressed Air
Electricity ..... Section 11

ELEVATOR REGULATIONS

524 CMR 15.00 THROUGH 35.00

BOARD OF STATE EXAMINERS OF PLUMBERS AND GAS FITTERS

248 CMR 5.00: NATIONAL FUEL GAS CODE (NFPA 54)

9.4.3.3: Permanent lighting shall be provided at the roof access. The switch for such lighting shall be located inside the building near the access means leading to the roof.

248 CMR 8.00: LIQUIFIED PETROLEUM GAS CODE (NFPA 58)

6.4.4.4: The distance measured in any direction from the point of discharge of a container pressure relief valve, vent of a fixed maximum liquid level gauge on a container, and the container filling connection to external sources of ignition, openings into direct-vent (sealed combustion systems) appliances, and mechanical ventilation air intakes shall be in accordance with Table 6.4.4.3. [Notes: This distance is 10 ft for cylinders refilled on-site at the point of use. Air-conditioning compressors are considered sources of ignition for the purposes of applying this rule.

105 CMR 410: MINIMUM STANDARDS OF FITNESS FOR HUMAN HABITATION (STATE SANITARY CODE, CHAPTER II)

†General Footnote: *The provisions of the regulations cited in this appendix have been compiled by Massachusetts Department of Fire Services staff members, members of the Electrical Code Advisory Committee, and other volunteers. They are noted to assist the users of the Massachusetts Electrical Code in properly considering various electrical design constraints of other building systems. They are generally unenforceable by an Inspector of Wires. See Rule 5 of the Massachusetts Electrical Code. This appendix has not been promulgated by the Board of Fire Prevention Regulations because it does not contain requirements within the scope of the Massachusetts Electrical Code (527 CMR 12.00), and therefore it will not appear in the versions available in Law Libraries and State Bookstores.*

APPENDIX ONE
RECORD OF INTERIM CHANGES TAKING EFFECT AFTER JANUARY 1, 2020

Two such changes were made after the effective date of the 2020 Massachusetts Electrical Code until the promulgation of current edition of the Massachusetts Electrical Code. Based on prior recent history given the costs of advertising and other obstacles, the regulatory process in the state is now so hostile to any such activity that the Advisory Committee avoided other efforts. The first of these became effective in the fall of 2020; the second became effective January 26, 2023.

I-01. Insert a new CMR 12 revision as follows:
Submitter: Massachusetts Electrical Code Advisory Committee:

230.85. Revise to add the following exceptions:

Exception to (1), (2), and (3): A building requiring an emergency disconnect(s) supplied by a service lateral or by underground service conductors which terminate inside the building shall be permitted to be capable of disconnection from a readily accessible location outside of the dwelling by using a method providing remote control of the service disconnecting means, and marked: REMOTE EMERGENCY ELECTRICAL DISCONNECT and NOT SE RVICE EQUIPMENT.

Markings shall comply with 110.21(B). This section shall only apply to the following:

(1) New one- and two-family dwellings, or new buildings of double occupancy, at least one of which is a dwelling unit.

(2) Two-family dwellings or buildings of double occupancy at least one of which is a dwelling unit, and newly created by subdivision of an existing one-family dwelling.

(3) One- and two-family dwellings where the service equipment in either or both dwelling units is entirely replaced.

(4) One- and two-family dwellings where the service equipment in either or both dwelling units is being increased in capacity in terms of its rating in amperes.

Committee Statement:

This action allows for remote control of the first responder disconnecting function in instances where a service lateral extends directly into a building, avoiding the need to bring the full-size conductors out of the building and then running back into the building. There are older buildings, especially in historically significant neighborhoods, where this relief is necessary. The action also provides clarity as to the required application of the rules, particularly in buildings having mixed uses.

Vote on Committee Action: Unanimous

I-02. Insert two amendments into 527 CMR 12.00 as follows:
Submitter: Massachusetts Electrical Code Advisory Committee:

210.8. Insert the following exception after the first paragraph:

Exception: Permanently connected equipment and cord-and-plug connected stationary equipment that is listed, but incompatible with GFCI protective devices as made available by the manufacturer of the circuit protection currently installed, shall be permitted to omit such protection provided it is installed and inspected in accordance with the provisions of Rule 11 of this Code. This exception shall expire on January 1, 2026.

Insert the following new Rule 11

Rule 11. Electrical installations that appear incompatible with GFCI protection as covered in 210.8 Exception of this Code, regardless of the code requirements in effect at the time when the permit as described in Rule 8 was issued, or when the installation was completed, shall be inspected by a qualified person. The inspection shall review all field elements of the branch-circuit equipment grounding return path, and the quality of any field-accessible cord connections if applicable. The inspection shall be documented, subject to audit by the Inspector of Wires, and inspected by him or her as deemed necessary. Installations of listed equipment that, under normal operating conditions, are found to be incompatible with GFCI protective devices as made available by the manufacturer of the circuit protection currently installed shall be excused from providing GFCI protection. If not connected to an individual branch circuit, incompatible equipment shall be directly wired or connected to a single receptacle, and the circuit shall be arranged so required GFCI protection is retained for the remaining outlets. The inspection documentation required by this rule shall constitute the notice required in Rule 8 and no additional notice shall be required for corrections applied accordingly. The location and the date of this determination shall be forwarded to the Department of Fire Services for inclusion in a central registry of such allowances. The report shall also include the appliance manufacturer and model, together with the identity of the GFCI protective device. This rule shall expire on January 1, 2026.

Committee Statement:

The Advisory Committee has become aware of large numbers of nuisance trips of GFCI protective devices protecting certain appliance types. There are evident discrepancies between the product standards governing appliances and those governing GFCI protection. These discrepancies will require time for the industry to sort out. This approach uses as its inspiration the assured equipment grounding conductor approach in 590.6(B)(2). This rule is also written to retain GFCI protection for all other outlets requiring such protection on a multi-outlet circuit. The language also disallows the elimination of required GFCI protection in instances where malfunctioning appliances are deservedly causing GFCI protective devices to discontinue power.

It also locates the correction in the administrative rules. In this position, the correction can be and is written to also apply to installations permitted under the 2020 MEC. For additional clarity, the language waives the requirement for a subsequent permit, which is squarely within the authority of the BFPR under c. 143 §3L (3rd paragraph). This action protects our citizens from the unintended impact of these difficulties, and is capable of immediate effect. The qualified person approach (with the ability for inspector audit) minimizes the impact on the inspection community. It also creates an unimpeachable repository of data that will be of assistance to the standards making process.

Vote on Committee Action: Affirmative, 8; Negative, 1

Secretary's Note: The phrase "under normal operating conditions" in Rule 11 and the sentence "The language also disallows the elimination of required GFCI protection in instances where malfunctioning appliances are deservedly causing GFCI protective devices to discontinue power." in the Committee Statement were added after the meeting and with the express consent of the BFPR during the meeting when it authorized this action to proceed as an emergency filing. The action closed a significant loophole that came to light after the Committee meeting adjourned.

APPENDIX TWO
RECORD OF COMMITTEE ACTIONS ON ALL PROPOSALS MADE FOR THE MASSACHUSETTS ELECTRICAL CODE, 2020 NEC EDITION

23-01 [Entire Document, Mass., enacting paragraph]
Submitter: Frederic P. Hartwell
Proposal: Update the introductory matter to the 2023 document, as follows:

The Massachusetts Electrical Code (527 CMR 12.00) of the Board of Fire Prevention Regulations (BFPR) shall be the 2023 National Electrical Code (NEC), as published by the National Fire Protection Association (NFPA) as NFPA 70 in the form released by vote of the NFPA Standards Council on August 12, 2022, including all modifications made by the BFPR and duly promulgated from time to time in the Code of Massachusetts Regulations. Amendments made by NFPA subsequent to this date have no force or effect until and unless reviewed and promulgated by the BFPR.

Informational Note: The NFPA releases Tentative Interim Amendments (TIAs) from time to time to its standards, including NFPA 70, (NEC). True to their title, these changes are tentative, they are of an interim nature, and they amend (in this case) the electrical code. They have not been processed through the NFPA normal standards making process. As of the 2020 NEC cycle, these amendments, subsequent to their release, now appear in all renditions of the NEC, both print and electronic, in a form that makes them visually indistinguishable from unamended text.

The NEC version adopted in Massachusetts will be that found in the first printing in book form, and that rendition will include TIAs adopted by the Standards Council at its August 10th-12th, 2022 meeting, but no others. Users of this code are advised to consult the front matter on the first page of the NEC for a list of TIAs issued by NFPA, organized by location and specified dates of issuance. In addition, the inside front cover now includes a clear designation of the printing and the TIAs (by number only) that are included. Specific information for each will be found on the NFPA website (www.nfpa.org/70). The NEC version in effect in Massachusetts will usually vary, increasingly over time, from the version amended by NFPA depending on the timing of BFPR actions subsequent to initial promulgation.

NFPA also issues advisories of errata. These reflect errors in printing, and bring the published version of their standards, including the NEC, into agreement with the actual results of the standards development process. Because the legally enforceable standard is the form as developed through that process, errata are considered to be effective as of the original issuance of the standard, and therefore are considered effective in Massachusetts as of the date of the original promulgation of this code.

\Substantiation: Aside from the change in date, the only significant changes are some additional information in the informational note relative to current NFPA publication policies on TIAs, and also a third paragraph addressing errata. NFPA is including errata publication advisories in the same location as TIA advisories; many users are confused as to their meaning and to the timing of their legal effectiveness, both of which differ greatly from TIAs.

Committee action: Accept.
Vote on Committee Action: unanimous

23-02 [Rule 7 (Mass.)]
Submitter: Frederic P. Hartwell
Proposal: Change the effective year from that following 2019 to that following 2022.

Substantiation: This is the usual administrative proposal to reflect a new code cycle.

Committee Action: Accept
Vote of Committee Action: unanimous

Secretary's Note: Because of the unexpected delay in the effective date of this code edition, a delay that was uncertain as to duration, it was agreed that the Secretary would work with DFS staff to change the date as required in order to commence the application of the code under this rule to the last day of the month when its filing became legally effective. That date is February 17, 2023, and therefore Rule 7 applies to permits granted after February 28, 2023.

23-03 [Rule 8, (Mass.)]
Submitter: Peter Diamond
Proposal: Add new language as noted with underlined text.

In accordance with the provisions of M.G.L. c. 143, *§* 3L, the permit application form to provide written notice of installation of wiring shall be uniform throughout the Commonwealth, and applications shall be filed on the prescribed form. Electronic transmittals of this form may be submitted when done in accordance with the Uniform Electronic Transactions Act (M.G.L. c. 110G). After a permit application has been accepted by an Inspector of Wires appointed pursuant to M.G.L c. 166 *§,* 32, an electrical permit shall be issued to the person, firm or corporation stated on the permit application. Such entity shall be responsible for the notification of completion of the work as required in M.G.L. 143, §3L.
Permits shall be limited as to the time of ongoing construction activity and may be deemed by the Inspector of Wires abandoned and invalid if he or she has determined that the authorized work has not commenced or has not progressed during the preceding 12-month period. Upon written application, an extension of time for completion of work shall be permitted for reasonable cause. A permit shall be terminated upon the written request of either the owner or the installing entity stated on the permit application.

Substantiation: The addition of this language in Rule 8 will guide both the applicant and the municipality on electronic business communications permitted in accordance with MGL 110G of the Uniform Electronic Transactions Act. This change is consistent with the widespread use of electronic email and electronic permitting systems throughout the Commonwealth.

Committee Action: Accept
Vote on Committee Action: unanimous

23-04 [90.2(B)(5) (Mass.)]
Submitter: Frederic P. Hartwell
Proposal: Relocate this amendment as 90.2(D)(5)

Substantiation: The section has been reorganized. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-05 [90.4 (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Change the heading text and code content to read as follows:
90.4. Revise 90.4 by replacing 90.4(A) and 90.4(B), as follows. Sections 90.4(C) and 90.4(D) remain unchanged from the NEC.
90.4 Enforcement.
(A) Application. This Code shall be used by the authority enforcing the Code and exercising legal jurisdiction over electrical installations.
(B) Interpretations and Approvals. The authority having jurisdiction of enforcement of the Code shall accept listed and labeled equipment or materials, where used or installed in accordance with instructions included with the listing and labeling. The authority shall have the responsibility for deciding upon the approval of unlisted or unlabeled equipment and materials, and for granting the special permission contemplated in a number of the rules.

Substantiation: The 2023 NEC is reorganizing this section into four lettered first level subdivisions. This proposal responds by taking the existing text and dividing to create replacement text for each of the first two subdivisions, thereby exactly retaining the existing provisions in concert with the other two NEC subdivisions that should be applicable in Massachusetts, and now clearly will be. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-06 [Art 100, Selective Coordination (Mass.)]

Submitter: Jack Lyons
Proposal: Remove current amendment to this definition:

Substantiation: This isn't the true definition of Selective Coordination.
The real definition includes the words;
".. for the full range of available overcurrents, from overload to the available fault current, and
for the full range of overcurrent protective device opening times
associated with those overcurrents…"
It should cover all currents and all time frames to maintain safety in Life Safety Systems.

If this committee wants to include something else, then they should make up another term
Committee Action: Reject
Committee Statement: The Committee is aware that the amendment is not in agreement with the usage in the NEC, and purposefully so. The NEC requirements are excessive and occasion enormous expense with unsubstantiated benefits. There is a reason that this change generated overwhelming support in the previous cycle, and the substantiation for this proposal does not begin to address the voluminous substantiation

and supportive comments in the voting that supported this amendment in the 2020 cycle. Please refer to the full commentary that supports the final action on Proposal 20-10 in the 2020 cycle.
Vote on Committee Action: Affirmative, 11; Negative, 1

23-07 [Art 100, Selective Coordination (Mass.)]
Submitter: Jack Lyons

Proposal: Add a new defined term before Coordination, Selective:

Coordination, Limited (Limited Coordination). Revise this definition to read as follows:
Localization of an overcurrent condition to restrict outages to the circuit or equipment affected for fault current events that extend beyond 0.1 second, and accomplished by the selection and installation of overcurrent protective devices and their ratings or settings for the range of available over-currents under such conditions, whether originating from overload, ground-fault, or short circuit, and for the full range of overcurrent protective device opening times applicable to such events

Committee Action: The Committee recognized the submitter's choice to withdraw the proposal.
Vote on Committee Action: No vote

23-08 [Art. 100, Energized, Likely to Become (Likely to Become Energized)]
Submitter: Frederic P. Hartwell

Proposal: Insert a new MEC revision as follows:

Art. 100. Energized, Likely to Become (Likely to Become Energized) Revise this definition to read as follows:

Conductive material that could become energized because of either a single failure of electrical insulation, or an electrical spacing failure.

Substantiation: This definition, new in the NEC, lacks the crucial element that conditions its application to a single failure of electrical insulation. For example, take double-insulated tools. The failure of a single insulating element will not create an energized contact surface, but two failures in the right location may create such a surface. It is understood that such simultaneous failures are vanishingly rare, and therefore such tools are acceptable to use without an equipment grounding connection. The NEC wording, which copies erroneous text in the Style Manual, omits this crucial concept. The result will be widespread confu-sion. Arguably, all DI equipment could be considered likely to become energized, because a simultaneous insulation failure may indeed energize a conductive surface.

Committee Action: After two votes that broke 6-6, the Committee recognized the submitter's choice to withdraw the proposal.
Vote on Committee Action: No vote on withdrawal

23-09 [Art. 100, Manufactured Home (Mass.)]
Submitter: Frederic P. Hartwell
Relocate this material (from Art. 550) into Art. 100 as follows:
Art. 100. Manufactured Home, Informational Note No. 2. Add the following sentence:

Manufactured housing that is not designed to be transportable on running gear, and that is not produced under regulations that expressly cover such housing, is classified under Article 545.

Substantiation: This material is being relocated into Art. 100. Our material must follow suit. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-10 [Art. 100, Occupiable Space]

Submitter: Frederic P. Hartwell

Proposal: Insert a new MEC amendment as follows:

Art. 100. Occupiable Space. Insert the following definition:
A room or enclosed space designed for human occupancy in which individuals congregate for amusement, educational or similar purposes or in which occupants are engaged for labor, and which is equipped with means of egress and light and ventilation facilities.

Substantiation: A proper definition of this term will allow for consistent application and enforcement of 404.2(C), which presently only references building code provisions. This wording is consistent with current building code practice. CMP 9 intended this definition to have been incorporated within Art. 100 by CMP 1, and deleted the reference to building codes during its meeting on public comments. Unfortunately, CMP 1 bungled the instruction and removed the definition it had earlier created entirely. As organized by this submitter, the CMP 9 membership voted against the removal on the final ballot, preserving the status quo. This definition will be trade friendly, and probably of only one cycle in duration. This wording will be resubmitted with a (CMP 9) suffix, which will allow control of this definition in the 2026 NEC to be properly exercised.

Committee Action: Accept
Vote on Committee Action: Affirmative, 11, Negative, 1

23-11 [110.13(B) (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Delete this amendment.

Substantiation: The PI that would have inserted this material into the NEC was resolved unanimously by CMP 1. On further review, it is unnecessary because the relevant ventilation requirements are established by the manufacturer. If those requirements actually preclude ceiling contact, then the application of 110.3(B) will provide an acceptable vehicle for enforcement.

Committee Action: Accept
Vote on Committee Action: unanimous

23-12 [110.14(A) (Mass.)]

Submitter: Jack Lyons
Proposal: Delete current amendment to 110.14(A).

Substantiation: This is no longer needed as the listing of the devices will cover the requirements for termination. Most devices are designed for stranded conductors under the "Binding Screws."

Committee Action: Accept in principle and in part. Revise the existing language as follows:

110.14(A). Delete the last sentence of the first paragraph and insert the following two sentences in its place:

Connection by means of wire binding screws or studs and nuts having upturned lugs or equivalent shall be permitted for 10 AWG or smaller solid conductors, or conductors with Class B stranding. Where Class C stranded conductors are terminated on and not looped through such terminals, the ~~terminals shall be identified for such use~~, uninsulated strands shall be completely enclosed within the termination, or the strands at the terminals shall be made solid.

Committee Statement: The Committee agrees that the current allowances in the product standard complicate the enforcement of the present wording. The Committee also agrees that the individual strands of Class B stranding are sufficiently rigid to safely terminate on a screw terminal with an upturned lug. The rewording addresses the principal field issue. Class C stranded conductors that do not enter back-wired terminals, or side-wired terminals with pressure plates under the screw head, very commonly result in strands escaping the termination and creating a hazard.
Vote on Committee Action: Affirmative, 11; Negative, 1

23-13 [110.14(C)(1)(a)(4)]

Submitter: Russell LeBlanc
Proposal: Please revise Section 110.14(C)(1)(a)(4) as follows:
For equipment listed and identified for use with 75°C conductors, and for motors marked with design letters B, C, or D, conductors having an insulation rating of 75°C (167°F) or higher shall be permitted to be used, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity.

Substantiation: Using higher rated conductors with their ampacity based on the 75 degree C ampacity should also be permitted for equipment other than motors.
Here are the present options for equipment terminations.
Section 110.14(C)(1)(a)(1) requires 60 degree conductors.
Section 110.14(C)(1)(a)(2) permits 75 degree C or 90 degree C conductors with their ampacity determined at the 60 degree ampacity.
Section 110.14(C)(1)(a)(3) permits 75 degree C conductors to be used on equipment listed for use with 75 degree C conductors with their ampacity based on 75 degree C ampacity! It does not however specifically permit 90 degree conductors to have their ampacity based on the 75 degree C ampacity. The intent may be to allow it, but it falls short of that.
Section 110.14(C)(1)(a)(4) only applies to motors, but does not apply to receptacles, switches, circuit breakers or other equipment! It should, if the equipment is listed and identified for use with 75 degree C conductors.

While the last Sentence in 110.14(C) permits conductors with temperature ratings higher than specified for terminations, it only permits them to be used for ampacity adjustment, correction, or both. My proposed revision will permit 90 degree C conductors to have their ampacity based on the 75 degree ampacity even when no adjustments or corrections are required.
See the following photos I submitted showing a 50-amp receptacle, a 30-amp receptacle, and a circuit breaker, all of which are listed and identified for use with 75 degree conductors with their ampacity based on the 75 degree C conductors. Using 90 degree C conductors with their ampacity based on the 75 degree C ampacity should be permitted for these receptacles and other equipment listed and identified for use with 75 degree conductors.
{Secretary's Note: Three photographs were supplied as described in the substantiation.
Committee Action: Reject
Committee Statement: The Committee disagrees that the present NEC language disallows the use of 90°C rated conductors on terminations rated for 75°C, assuming the current is limited to that allowable for conductors equipped with 75°C rated insulation. The wording of 110.14(C)(1)(a)(3) allows the use of conductors having higher temperature ratings than the default in (a)(1) of 60°C if the terminating equipment is appropriately listed and identified. Such equipment is common, as the included photographs do demonstrate. Taking the photographed 50-amp receptacle as a good example, it is clearly marked "75°C rating." This would allow, for example, a set of 8 AWG THHN conductors to be terminated by right on this device, because they have the requisite ampacity (50A) from the 75°C ampacity column in Table 310.16, and they are also within the permitted size range of 10 to 4 AWG as also marked on the device. Such conductors, after termination on the photographed receptacle, will not exceed a 75°C operating temperature, assuming the related circuit components are sized accordingly. Therefore, those applications are clearly within the scope of 110.14(C)(1)(a)(3).
Vote on Committee Action: unanimous

23-14 [110.26(A)(4)(4) (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Delete this amendment.
Substantiation: This has been accepted into the 2023 NEC. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.
Committee Action: Accept.
Vote on Committee Action: unanimous

23-15 [210.8 (Mass.)]

Submitter: Jack Lyons.

Proposal: Remove amendment to 210.8 that modifies the second paragraph.

Substantiation: The intent of the original NEC language was to protect all receptacles within six feet of a sink. The argument that a bedroom receptacle should not be covered if access to it is by going thru the door does not address the issue of the door being open and someone using a piece of electrical equipment within the six foot range of the sink.
This will have to be correlated with other sections that address the door in a kitchen cabinet.

Committee Action: Accept the decision of the submitter to withdraw the proposal.
Vote on Committee Action: No vote

23-16 [210.8(A)(3)]
Submitter: Russell LeBlanc
Proposal: Regarding GFCI protection for receptacle outlets installed outdoors at dwelling units as specified by Section 210.8(A)(3)-

Please renumber the existing exception to exception 1 and add exception 2 to Section 210.8(A)(3) as follows:

Exception 2 to (3): GFCI protection shall not be required for other than 125-volt, 15- and 20- ampere receptacles installed solely for the connection of a recreational vehicle where the receptacle or the enclosure is marked " For Connection of RV Only".

Substantiation: This revision is needed to provide some relief for homeowners like myself who often have receptacles installed at their homes to plug-in their 30-amp or 50-amp campers and trailers while they are parked in their driveway or yard. I often set up and plug in my camper to make repairs or perform system checks before going on camping trips. Some people even like to "camp" in their own driveways! This revision closely resembles the requirements for RV parks in the MEC and T.I.A. 20-8 issued for Section 551.71(F) The informational note in that Section also indicates that a class A GFCI may experience nuisance tripping from appliances used within the RV. Therefore, the relief is needed, otherwise it may be impossible to plug-in an RV at home without tripping a GFCI.

Informational note 2 for 551.71(F) supports the argument that when the RV is plugged in, the receptacle is actually part of a feeder and the requirements of 210.8(A)(3) would not be applicable anyways! But relief is still needed for when the homeowner unplugs the RV, and the receptacle is then considered part of a branch circuit again. My proposed revisions will provide this relief. Otherwise, it may be impossible for RV owners to plug-in and power up their campers at home resulting in homeowners coming up with creative and dangerous ways to power their campers! My proposal aims at preventing those creative and dangerous solutions from happening.

Committee Action: Reject
Committee Statement: The committee is concerned that the outlet covered by the proposed allowance may not always be used to supply a recreational vehicle, and any other load would not have the anticipated GFCI protection.
Vote on Committee Action: unanimous

23-17 [210.8(A)(6)]

Submitter: Robert P. McGann
Proposal: Insert a new CMR 2 revision as follows:
210.8(A)(6). Delete all wording after kitchen, making this a requirement for all 125V-250V receptacles in the kitchen to be GFCI protected.:

Substantiation: There are more metal and/or current carrying countertops are being installed in dwelling units and must be GFCI as they maybe connected to the sink or creating a difference in potential which could be a safety issue.

Committee Action: Reject
Committee Statement: The proposal is unnecessary. The reach of 210.8(A) has been extended in the 2023 NEC to all receptacles in kitchens, even (based on the literal text) clock receptacles.
Vote on Committee Action: unanimous

23-18 [210.8(A)(10)]

Submitter: Robert P. McGann
Proposal: Insert a new CMR 2 revision as follows:
210.8(A)(10). Add to laundry areas (shall include all 125V – 250V within 6 ft of laundry equipment must have GFCI protection.

Substantiation: "We need a clear rule." Are we concerned about the equipment becoming energized, then it should be moved to 422.5 for specific appliances. It needs a fix either way.

Committee Action: Reject
Committee Statement: The NEC has the requisite clarity. 210.50(C) requires receptacles for laundry equipment to be within 6 ft of the appliance. 210.8(A)(11) [the number changed from (10) in the 2023 cycle] requires protection for laundry areas, and receptacles for such equipment must carry the required GFCI protection, either at their location or from the branch-circuit protection.
Vote on Committee Action: unanimous

23-19 [210.8(B)(7)]

Submitter: Paul Kennedy
Proposal: Correct the references in the MEC amendment from the former 210.8(B)(5) to the 2023 NEC location of 210.8(B)(7).

Substantiation: This part of the NEC has been reorganized in the 2023 edition.
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Committee Action: Accept
Vote on Committee Action: unanimous

20-20 [210.8(C)]

Submitter: Robert P. McGann
Proposal: Insert 2nd sentence: One GFCI shall not protect all lighting in a given area.

Substantiation: This warrants a discussion: Should we require E.B.U. backup, or should it be required to use globed/caged fixtures?

Committee Action: Reject
Committee Statement: The proposal is insufficiently substantiated. How big is the area that would be deemed problematic? What local conditions would exacerbate risk? Taking this step would require far more analysis.
Vote on Committee Action: unanimous

23-21 [210.8(F) (Mass.)]

Submitter: Jack Lyons

Proposal: Delete the Mass Amendment to 210.8(F) and accept the TIA that will be issued to this Section as a result from Standard Council Action in August 2022. Decision Pending

Substantiation: The deletion of 210.8(F) had documented injuries and deaths related to the requirement of Non-GFCI protected Outdoor Outlets for equipment like HVAC equipment. The industry is working with Manufacturers of HVAC to resolve the interoperability between GFCI and equipment. Electronic Power Equipment (Frequency Drive Systems) have shown some high frequency Current leakage in addition to the leakage current exceeding 6mA. The industry has not concluded whether the high frequency is the same hazard as compared to 60 cycle current to the human body.
We should copy the TIA that was proposed and give the industry until the next code cycle to address the Electronic Power Supplies but require other equipment to be GFCI protected outdoors.
Committee Action: Reject
Committee Statement: The substantiation does not address the principal reasons that supported the amendment in the first place. The problems of nuisance tripping are simply an additional layer to those issues. The original substantiation was supported on a final vote of 20-1. It was as follows:

“This addition in the 2020 NEC has not been substantiated. The loss experience supporting this addition to the NEC was based on untrained and unqualified work on an air-conditioning condenser that ended up energized and a thereby caused a boy who jumped a fence and contacted the housing to become electrocuted. GFCI protection saves countless lives and certainly has its place. However, it is a fool’s errand to imply to the public that improper work can be rendered essentially safe by waving the GFCI magic wand. For example, contact between two circuit conductors will never trip a GFCI. CMP 2 came within one vote of rejecting this; Massachusetts needs to set it aside and await proper support.”
Vote on Committee Action: Affirmative, 10; Negative, 2

23-22 [210.12(B) (Mass.)]
Submitter: Frederic P. Hartwell
Proposal: Change the header line from the former reference to 210.12(A) to read as follows:
210.12(B). Replace the parent text and list items with the following:

Substantiation: This section is being reorganized. This proposal makes no substantive changes. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-23 [210.21(B) (Mass.)]
Submitter: Frederic P. Hartwell
Proposal: Revise the title line of the existing MEC amendment to read as follows:
"(5) Receptacle Outlets on Individual Branch Circuits."

Substantiation: This proposal correctly correlates the title with the paragraph content, which applies to the content of certain receptacle outlets. This phrasing ("receptacle outlets") is the subject of the sentence that constitutes the entirety of the rule that follows.

Committee Action: Accept
Vote of Committee Action: unanimous

23-24 [210.52(A)(2)(1) (Mass.)]
Submitter: Frederic P. Hartwell
Proposal: Insert the phrase "stationary appliances," after the word "fireplaces" and before the words "and similar openings."

Substantiation: This action correlates with a minor change coming forward in the 2023 NEC. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote of Committee Action: unanimous

23-25 [210.52(C) (Mass.)]
Submitter: Frederic P. Hartwell

Proposal: Replace the existing MEC amendment with the following"

I. Revise the parent language to read as follows:
"In kitchens, pantries, breakfast rooms, dining rooms, and similar areas of dwelling units, receptacle outlets for countertop and work surfaces that are 300 mm (12 in.) or wider shall be installed in accordance with 210.52(C)(1) through (C)(3). Receptacle outlets rendered not readily accessible by appliances fastened in place, appliance garages, sinks, or rangetops as covered in 210.52(C)(1), Exception No. 1, or appliances occupying assigned spaces shall not be considered as these required outlets."

For the purposes of this section, where using multioutlet assemblies, each 300 mm (12 in.) of multioutlet assemblies containing two or more receptacles installed in individual or continuous lengths shall be considered to be one receptacle outlet.

II. Revise 210.52(C)(2) to read as follows: "At least one receptacle outlet shall be installed to serve each island and peninsular countertop of work surface, and shall be located in accordance with 210.52(C)(3). A receptacle in a wall countertop or work surface that directly faces a peninsular countertop or work surface shall be permitted to serve as the receptacle for the peninsular space."

III. Revise 210.52(C)(3) to read as follows: "Receptacle outlets shall be located in one or more of the following spaces:

(4) On or above, but not more than 500 mm (20 in.) above, a countertop or work surface.
(5) In a countertop or work surface, using a receptacle outlet assembly listed for the location.
(6) Not more than 300 mm (12 in.) below countertops or work surfaces on peninsular or island countertops or work surfaces where the surface is flat across its entire surface (no backsplashes, dividers, etc.) and there are no means to mount a receptacle within 500 mm (20 in.) above the countertop or work surface, such as an overhead cabinet. Receptacles installed below a countertop or work surface shall not be located where the countertop or work surface extends more than 150 mm (6 in.) beyond the face of such receptacles.

Exception to (3): Receptacle outlets shall be permitted below wall-mounted countertops or work surfaces in construction for the physically impaired.

Substantiation: The 2023 NEC is removing all area calculations with respect to determining the minimum number of receptacle outlets required in peninsular and island countertops, and also is eliminating the obligation to install even a single receptacle outlet for such spaces as long as there are "provisions" for the "future addition of a receptacle outlet." In addition, the 2023 NEC is prohibiting all receptacles from being positioned below the countertops.

This rewrite does the following:

1. It moves the final paragraph of (C)(3) into the parent text because it has nothing to do with allowed receptacle locations, which is the scope of (C)(3), and it has everything to do with the general rules that mandate receptacle outlets for countertops. The removal of language correlating with our deletion of 210.52(A)(4) remains unchanged in this proposal.

2. It removes the allowance for a future receptacle placement, in favor of a mandate to provide such a receptacle. A future allowance will prove to be an administrative nightmare for the inspection community in terms of keeping track of such allowances, and in addition, the word "provisions" will need to be locally interpreted, and will be subject to enormous inconsistency across the commonwealth, very much at odds with the concept of a consistent state code.

3. It implements the absence of calculations relative to the numbers of receptacle outlets. It also retains the existing MEC 6-ft rule for a peninsula connected across from a wall receptacle. This is relevant because the general coverage mandate is retained in this proposal.

4. It retains the allowance for receptacles mounted on the sides of islands and peninsulas. The reasoning behind the allowance importantly has to do with general popular revulsion about tombstone receptacle placements on surfaces that they regard, correctly, as their kitchen tables. The pop-up assemblies are not as visually objectionable, but necessarily result in substantial reductions in storage space in the upper shelf spaces of the usual cabinets installed below such counters. This will be regarded as an excessive intrusion by big brother, and will likely provoke legislative intervention into our code, something unprecedented in the 70 years of its existence.

CMP 2, acting on the submitter's Proposal 2-186 in the 1999 NEC cycle, got it completely right: "In an effort to address the concerns presented by this and other submitters, the panel prefers the receptacle to be mounted above the countertop in as many instances as possible. It is also realized that from a practical construction perspective, many users do not desire to have a tombstone style outlet mounted on a flat countertop.

"The panel shares some of the same concerns as other submitters relative to the access of a side-mounted receptacle to children, however, this language minimizes the installation of receptacles on the side of the countertop as much as possible with the present products and construction methods. Parents will have to be prudent in their use of side-mounted receptacles where small children are present as they are with many other potential hazards in the home"

It is true that there are pop-up receptacle assemblies available today, however, it is also true that appliances are now being manufactured with power assemblies that use mating power contacts secured by magnets. These are toddler proof. This proposal also restores the prohibition of side-mounted receptacles in islands and peninsulas with overhead cabinetry or vertical segments on their surfaces that could support receptacle placements. This limitation came out of the 2020 NEC in the context of devising area calculations, and should be restored.

This proposal also expressly incorporates the permission for side-mounting generally in construction that is designed for people in wheelchairs. This also came out of the 2020 NEC, although an informational note directing the reader to coverage of this topic in Annex J was included. This proposal restores the mandatory text required to implement this concept.

This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC. It largely restores the status quo ante, and in the process corrects other errors pending in the 2023 NEC,

Committee Action: Accept
Vote on Committee Action: Affirmative, 9; Negative, 3

23-26 [215.15]

Submitter: Frederic P. Hartwell
Proposal: Insert a new MEC revision as follows:

215.15. Barriers. Revise to read as follows:
"Barriers shall be placed in panelboards, switchboards, switchgear, and motor control centers such that no uninsulated, ungrounded supply terminal is exposed to inadvertent contact by persons or maintenance equipment while servicing load terminations. This requirement shall be applied to the supply terminals of equipment supplied by feeder taps as covered in 240.21(B) or by transformer secondary conductors as covered in 240.21(C), in all instances where the equipment disconnecting means is located within the same enclosure, or is located remotely and also controls other loads."

Substantiation: The first sentence covers the intent of the rule and the equipment it applies to. The second sentence covers the supply instances where tap rules in 240.21 raise issues. It also includes instances where the disconnecting means is remote from the enclosure and controls multiple loads. In so doing, it responds fully to situation where a supply source controlling multiple loads is less likely to be opened to provide the maintenance described. In so doing, it parallels the situation that supported the previous creation of a similar requirement for service disconnects. It also includes integral main breakers, because even if they are operated their supply terminals remain energized. Any qualified person, and most unqualified persons as well, will turn a remote disconnect off (the location of which being now required to be posted on the equipment) if no collateral inconvenience is occasioned as a result. This rule is intentionally more permissive than 230.62(C) because service equipment is not easily disconnected.

Committee Action: Accept
Vote on Committee Action: unanimous

23-27 [220.40 Informational Note]

Submitter: Bruce Dempsey
Proposal: Please add the following FPN:
90.2. Beginning on January 1, 2024 and thereafter Cities and Towns that have adopted the Specialized Stretch Energy Code will require new one and two family homes built with fossil fuel equipment to be pre-wired for future electrification conversion. This will require a load calculation and service sizing to be based on the future requirement as if it was an all-electric home at the time the home is built. The branch circuits for the future electrical equipment to be converted shall be installed to their locations when the home is built as well.

Substantiation: The state is bringing out a third option of the energy code for one- and two-family homes. It is due to hit the street on or before January 1, 2023. Cities and towns will have to opt in to this new specialized code the same way they did for the stretch code. Cities and towns will vote to adopt the specialized code. Once adopted, they must notify the public for six months before it can be enforced and can only enter into enforcement on July 1 or January 1, after the six-month period is complete. The electrical industry needs to be informed of this change so contractors can estimate and quote their work effectively to meet the new requirements of the building code. The following cities and towns are just waiting for the new code to go into effect so that they can be among the first to opt in Lexington, Cambridge, Brookline, Concord, and Arlington. There will be many others to follow suit.

Committee Action: Accept in Principle. Insert a new Informational Note as follows:

220.40. Insert the following third informational Note:

Informational Note No. 3: Beginning on January 1, 2024, cities and towns that have adopted the Specialized Stretch Energy Code will require new one- and two-family homes built with fossil fuel equipment to be pre-wired for future electrification conversion. For heating equipment, this will apply to heat pumps or to resistance heat or to both as applicable. The requirements will also extend to fossil-fueled major appliances. This will effectively require the service, and intermediate feeders if present, to be wired based on the future requirements as if it were an all-electric home at the time the home is built. In addition, where this Energy Code is in effect, the advance installation of branch-circuit wiring for all future electrical equipment that would be required to accomplish the future conversion from fossil fuel applications must be in place, routed to locations that are appropriate to meet this intent.

Committee Statement: The Committee agrees that the users of this Code must be advised that the adoption of the Specialized Stretch Energy Code in a municipality will result in significant additional wiring being required as part of one- and two-family home construction, even if the final conversion equipment is not installed at the time. The Committee prefers to place this note in the Load Calculation requirements, rather than in the scope of the Code. The Committee is also making editorial improvements in the content.
Vote on Committee Action: unanimous

23-28 [225.31 Ex. 1 (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Change the header line to identify the location as 225.31 Exception No. 1.
Substantiation: This section is being renumbered (from 225.32). This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.
Committee Action: Accept
Vote on Committee Action: unanimous

23-29 [230.85 (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Replace the existing Mass. amendment to 230.85 with the following:
230.85. Make the following changes in this section:
I. Replace the parent language with the following:

For one- and two-family dwelling units, an emergency disconnecting means shall be installed. This section shall apply to new one- and two-family dwellings, or new buildings of double occupancy, at least one of which is a dwelling unit. It shall also apply to two-family dwellings or buildings of double occupancy at least one of which is a dwelling unit, and newly created by subdivision of an existing one-family dwelling.
II. In 230.85(A)(1), Identify the existing exception as Exception No. 1. Insert a second exception to read as follows:

Exception No. 2: A building supplied by a service lateral or by underground service conductors shall be permitted to be capable of disconnection from a readily accessible location outside of the dwelling by using a method providing remote control of the service disconnecting means, and marked: EMERGENCY ELECTRICAL DISCONNECT and NOT SERVICE EQUIPMENT.

III. Revise 230.85(C) to read as follows:
This section shall apply to one- and two-family dwellings if the service(s) is (are) entirely replaced. This section shall also apply to one- and two-family dwellings if the service(s) is (are) increased in capacity in terms of its (their) rating in amperes. This section shall not apply to service equipment repairs that consist exclusively of replacement of one or more of the following components of the service equipment:

(5) Meter socket(s)
(6) Service entrance conductors
(7) Service entrance or other related raceways and fittings

Substantiation: These changes integrate the existing MEC interim amendment into the forthcoming text of the 2023 NEC, avoiding substantive changes. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC. Note that the 2023 NEC will also include a correlating requirement at 225.41 to cover such dwellings supplied by a feeder. These arrangements are unlikely to create the issues that provoked the changes in 230.85 by the MEC, but should be reviewed carefully.

Committee Action: Accept in Principle. Accept as written, but insert an additional sentence to the new Exception No. 2: "The control wiring shall be enclosed in a raceway." In addition, insert the following fourth component in 230.85(C): "(4) Main overcurrent device."
Committee Statement: The Committee agrees with the proposal but wishes to provide greater assurance to the integrity of the control wiring that would be installed in order to make the remote-control function as covered in the exception. The Committee also wishes to include the replacement of a main overcurrent device in the list of items that would not necessitate invocation of this section retroactively.
Vote on Committee Action: unanimous

23-30 [240.24(A) (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Delete this amendment.

Substantiation: This has been accepted into the 2023 NEC. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-31 [240.24(A) (Mass.)]

Submitter: Jack Lyons
Proposal: Delete the current Mass Amendment

Substantiation: This is no longer need as the definition of Readily Accessible addresses the use of keys as appropriate to gain ready access to overcurrent devices in a control panel that is locked only. If a Screw is also used then the control box or other enclosure by definition is no longer readily accessible.

Committee Action: Accept
Committee Statement: The Committee does not agree with the substantiation. See the substantiation and action on Proposal 23-30,

Vote on Committee Action: unanimous

23-32 [250.25]

Submitter: James Rogers
Proposal: Insert a new CMR 12 revision as follows:
250.25. Grounding of Systems Permitted to Be Connected on the Supply Side of the Disconnect. Revise the content of this section to read as follows:
The grounding of systems connected on the supply side of the service disconnect, as permitted in 230.82, that are in enclosures separate from the service equipment enclosure shall comply with the following:

All metal enclosures, metallic wiring methods, and metal parts associated with the power source output circuit conductors shall be connected to the grounding electrode system for the service with only one of the following methods:

1. Grounded Conductor Brought to Power Source Disconnecting Means. Where a grounded service conductor is brought to the power source disconnecting means, the grounded conductor shall be connected to the disconnecting means grounded conductor terminal or bus. A bonding conductor shall connect the grounded service conductor to each metal enclosure for the power source output circuit conductors. This bonding conductor shall be sized in accordance with 250.102 based on the size of the power source output circuit conductors.
2. Grounded Conductor not Brought to Power Source Disconnecting Means. Where a grounded service conductor is not brought to the power source disconnecting means, each metal enclosure for the power source output circuit conductors shall be bonded using a separate bonding conductor sized in accordance with 250.102 based on the size the power source output circuit conductors. This separate bonding conductor shall be connected to the grounding electrode system

Substantiation: This language was accepted by CMP 4 for the 2020 NEC but was removed by actions taken at the NFPA annual meeting. The biggest concern that was expressed is that CMP 5 should be the committee that addresses language regarding grounding and bonding. This language was reviewed and accepted by representatives all across the alternative energy community. This language makes the requirements clear and will be of great assistance to the enforcement community.
Committee Action: This issue was not taken up by the Committee. This proposal wording and substantiation was extracted from NFPA documents in the 2023 cycle to which the submitter referred. The Secretary assigned a proposal number in anticipation of further action; and it is reported here for transparency and the potential for an interim amendment if necessary. The submitter did not pursue the proposal.
Vote on Committee Action: No vote

20-33 [250.140]

Submitter: Peter Diamond
Proposal: Insert a new MEC amendment as follows:

250.140 Frames of Ranges and Clothes Dryers.
Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers, and outlet or junction boxes that are part of the circuit shall be connected to the equipment grounding conductor in accordance with 250.140(A) or the grounded conductor in accordance with 250.140(B).
(A) Equipment Grounding Conductor Connections.

The circuit supplying the appliance shall include an equipment grounding conductor. The frame of the appliance shall be connected to the equipment grounding conductor in the manner specified by 250.134 or 250.138.

(B) Grounded Conductor Connections.

For existing branch-circuit installations only, if an equipment grounding conductor is not present in the outlet or junction box the frame of the appliance shall be permitted to be connected to the grounded conductor if all the conditions in the following list items (1), (2), and (3) are met and the grounded conductor complies with ~~either~~ list item (4) ~~or (5)~~.

(1) The supply circuit is 120/240-volt, single-phase, 3-wire; or 208Y/120-volt derived from a 3-phase, 4-wire, wye-connected system.

(2) The grounded conductor is not smaller than 10 AWG copper or 8 AWG aluminum or copper-clad aluminum.

(3) Grounding contacts of receptacles furnished as part of the equipment are bonded to the equipment.

(4) The grounded conductor is insulated, or the grounded conductor is uninsulated and part of a Type SE service-entrance cable and the branch circuit originates at the service equipment.

(5) ~~The grounded conductor is part of a Type SE service-entrance cable that originates in equipment other than a service. The grounded conductor shall be insulated or field covered within the supply enclosure with listed insulating material, such as tape or sleeving to prevent contact of the uninsulated conductor with any normally non-current-carrying metal parts.~~

Substantiation: The NEC is a safety Code and continues in each Code cycle to add new levels of protection for persons and property from the hazards arising from the use of electricity. For example, the 2023 NEC adds GFCI protection to all receptacles in a kitchen and adds GFCI protection to a significant list of appliances now such as wall ovens, cook-tops, microwaves, ranges, and dryers. The allowance of3-wire branch circuits dates back to World War II in an effort to save on metals for the war effort. In the 1996 Code cycle the requirement for a separate equipment grounding conductor for new branch circuits serving ranges and dryers was added to the Code. Since then, it has been required to update these branch circuits when the branch circuit no longer originated at service equipment due to a service change incorporating a new service disconnect and establishing the existing service equipment as a (sub-panel) distribution panel. The change in the 2023 NEC to allow the branch circuit to remain by "taping" the grounded conductor in 250.140(B)(5) is a step backwards in providing a safe electrical system for circuits suppling dwelling ranges and dryers. Furthermore, the "taping" is only required in the "supply enclosure" and overlooks the grounded conductor wiring in "outlet or junction boxes" that may be part of the branch circuit. By deleting 240.140(B)(5), many of the pre-existing 3- wire branch circuits will be upgraded to a 4-wire branch circuit along with GFCI protection in certain existing installation upgrades.

I recommend to the Code Committee to "Accept" this revision of the 2023 Code or "Accept in Principal [sic]" and revert back to the language in the 2020.

Committee Action: Accept in Principle. Insert a new MEC amendment as follows
250.140(B). Revise the final clause to read: “and the grounded conductor complies with list item (a).” Delete list item (5).

Committee Statement: The Committee agrees with the submitter, but has greatly simplified the presentation.

Vote on Committee Action: Affirmative, 11; Negative, 1

20-34 [300.5(D) (Mass.)]
Submitter: Frederic P. Hartwell
Proposal: Delete this amendment.

Substantiation: This has been accepted into the NEC. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-35 [305.15(A) (Mass.)]
Submitter: Frederic P. Hartwell
Proposal: Relocate the revision formerly located at 300.50 to read:
"305.15(A). In Note 4 to Table 305.15(A), insert the words "or institutional" after the word "industrial."

Substantiation: This rule is being relocated to the new Article 305 as part of the medium voltage rearrangement of some NEC content. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-36 [310.15(B)(2) (Mass.)]
Submitter: Frederic P. Hartwell
Proposal: Delete this amendment.:

Substantiation: This has been incorporated into the 2023 NEC. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

20-37 [314.29(A)]
Submitter: Frederic P. Hartwell
Proposal: Insert a new CMR 12 revision as follows:

Insert a new MEC amendment as follows:

314.29(A). Revise to read as follows:
(A) In Buildings and Other Structures. Boxes and conduit bodies shall be installed so the contained wiring and devices are accessible. Boxes and conduit bodies that are recessed into or behind finished surfaces of buildings shall have access to their internal contents maintained by openings in their covers and in the building finish that comply with 314.29(A)(1), (A)(2), or (A)(3) as applicable. Removable finished covers that maintain this access shall be permitted.
(1) Boxes 1650 cm^3 (100 in.^{3}) or Less in Size. The openings, if reduced from the outer walls of the box, shall be centered not more than 25 mm (1 in.) from the centerline of the box, and

shall not extend beyond the walls of the box. If rectangular, the opening shall be not less than 73 mm (2 7/8 in.) by 45 mm (1 3/4 in.) in size. If circular, the opening shall not be less than 90 mm (3½ in.) in diameter.

Exception: Smaller openings in building surfaces that accommodate one or more individual devices shall be permitted if all of the following conditions are met:

- *f) The outlet box that supplies the device(s) is nonmetallic.*
- *g) The branch circuit wiring that supplies each device consists of a separate nonmetallic cable assembly originating outside the box, or conductors in a nonmetallic raceway all of which originate outside the box. Other than connections to a single device, these conductors shall not be spliced in the box, and no other wiring shall enter the box.*
- *h) Each device shall be capable of removal from the building surface opening without being damaged. If a special tool is required for this purpose, the applicable circuit directory for the device shall record the location of the tool, together with a product code/QR code for acquiring a replacement if necessary.*
- *i) All connections for each device to the branch circuit wiring shall be made with listed clamping-type wire connectors, which shall be supplied with the devices. The branch-circuit conductors shall be arranged to permit the connector(s) to be exposed after the device has been fully removed*
- *j) The device(s) shall be listed for this application.*

(2) Boxes Larger Than 1650 cm^3 (100 in.^{3}) in Size. The openings shall not be smaller than the outer walls of the box.
(3) Conduit Bodies. The openings shall not be smaller than outer walls of the conduit body.

Substantiation: Both CMP 9 at the NEC level and the MEC Advisory Committee have recently become aware of devices designed to mount in front of the outlet boxes that contain their electrical supply. The outlet boxes are recessed entirely behind the building surfaces, with a cylindrical hole cut into the building surface to match the hole in a mounting plate that attaches to the box. The hole diameters are 36.5 mm (1 7/16 in.), sized to receive the actual devices. The device exteriors consist of nonmetallic barrels that engage mating surfaces manufactured as part of the mounting plates. The devices can be removed through the use of a cylindrical extraction tool that closely envelops the outer margin of the cylindrical device, and that in so doing spreads the interior locking tabs, which in turn enables the extraction of the devices, one at a time, after it is pushed into position.

This means that there is little meaningful access to the box interior after the surface material is applied. As noted, the devices can be removed, but the box interior is only viewable to the minimal extent that it can be seen through the finished hole. The surface treatments supported by the system run from 6 mm (1/4 in.) through 19 mm (3/4 in.) and up to 32 mm (1¼ in.), which results in a significant reduction in visibility into the box, especially relative to required equipment grounding connections to the box and also the mechanism for branch-circuit cable and/or raceway securement to the box itself.

An installation video provided by one manufacturer, however inadvertently, demonstrates these shortcomings convincingly. It shows the application of the special tool that allows for the extraction of the wiring device from the wall, with the device bringing with it branch circuit conductors attached to the wire leads from the device with twist-on wire connectors. As the device is drawn away from the wall, the branch-circuit conductors follow it, eventually bringing into view what appears to be an NM cable sheath. The entire cable assembly then begins to move out of the wall. This intersects with the installation advice (ad-

vice, not a requirement) that only one wire (obviously intended as meaning one cable assembly) be present in the box. It is also apparent that that cable assembly is not secured to the box, and that a significant amount of cable slack has been arranged ahead of the box, in order to support the withdrawal from the wall that allows for inspection and maintenance to be done as required to the supply connections. The video also implies (but does not state) that wiring methods other than Type NM cable should not be used. In fact, the intact cable assembly exiting the box shows no sign of the required equipment grounding connection to the box having been made, although the installation guidance from one manufacturer for single device applications specifies a steel outlet box.

The NEC has required access to boxes for about 100 years. What is now 314.29(A) originally only applied to junction boxes, however, the access rule was extended to outlet boxes 60 years ago, in the 1962 NEC. These devices and their mounting provisions obstruct access to and the ability to inspect boxes behind surface treatments. This approach eviscerates the six-decade requirement for access to outlet boxes, because a box in an admittedly known location whose contents cannot be viewed short of removing the building surface is one that effectively contravenes key safety objectives in the access rules. Electrical components that cannot be viewed cannot be maintained.

CMP 1 has rewritten the definition for accessible for the 2023 edition to further strengthen its terms, now including the word “blocked” along with the prior wording “closed in by the structure or finish of the building.” This system clearly blocks access to the box, and therefore will even more certainly fail the accessibility test. This amendment began as a proposed NEC TIA for the 2023 NEC. In its original form, this TIA, docketed as Log 1649, was presented without any exception. CMP 9, Task Group 2 had the opportunity, during the comment period on its original form, to engage with a major manufacturer of a system addressed in the TIA. The task group continues to believe that the TIA has general merit, in that the present content of 314.29(A) may allow for more latitude than CMP 9 ever intended. However, it also became clear that within strict limits, such a device system can be utilized within the policy objectives of CMP 9 without sacrificing safety. The limitations are accomplished through the use of a carefully crafted exception into the originally circulated TIA. Devices that operate under this system number in excess of 75,000. The TIA as originally worded would have forced the system out of the market.

It has become clear that if the product is used as at least one manufacturer intends it to be used, and the current installation instructions have many gaps and errors that cannot guarantee this outcome, then with the exception as proposed as part of this amendment, everything that one would need to see inside a box can be withdrawn from the box and into view. The one exception is the connection of the branch-circuit wiring to the box, and that is plainly viewable on the rough inspection. The manufacturer is prepared to go back to UL and revise his installation instructions and manufacturing/shipping practices accordingly.

Therefore, by a public comment circulated to address the original TIA (log 1649), the Task Group recommended to the CMP 9 membership that the votes cast to date be withdrawn. The understanding was that the TIA would reissue with the Exception herein included to 314.29(A)(1). That recommendation was successful, and the original version of this TIA was rejected by CMP 9.

CMP 9 will be shortly considering the original TIA, but modified by the placement of the exception. The wording in this MEC amendment is the same as what will be presented to CMP 9. The TIA to be proposed and this MEC amendment only differs, therefore, from the original only by the inclusion of the exception. A detailed analysis of the exception provisions follows:

(a) Requires a nonmetallic box. Such boxes do not require an equipment grounding connection, and therefore there will be no grounding connections to the box interior for review, maintenance, or inspection after the building finish is in place.
(b) Requires a nonmetallic branch circuit wiring method, for the same reasons as the nonmetallic box. The other provisions assure that each device is directly connected to a branch circuit conductor that is not otherwise spliced in the box. No splices or other wiring will be present to inspect or maintain, beyond the device connections that are withdrawable [see (d)].
(c) The devices must be designed for removal. The location of the tool must be entered in the circuit directory, which could be placed once at the bottom and referenced with asterisks or similar to reduce real estate. This rule also addresses what happens when the building changes hands or whatever. The wording also creates enforceable text relative to the field wiring being folded into the box in a way conducive to removal and reinsertion. To a great extent this will be self-enforcing, because the devices cannot be installed ahead of the building finish.
(d) With the manufacturer supplying the connectors, the manufacture and the testing laboratory will have control over their size, and therefore be in a position to assure that the connections can be withdrawn through the building surface specified opening diameter (currently 1 7/16 in.) when the device is removed. The point is that these connections must be inspectable and maintainable.
(e) This is the listing requirement, and it is to be specific to the application. This wording will assure that the evaluation will take into account the code context and not simply the general product standard requirements for receptacles.

The existence of this product line, now bolstered by a product listing, raises serious safety and enforcement concerns, particularly as it directly conflicts with new wording in Art. 100. CMP 9 has amended 314.29 for the 2023 NEC by removing former language that duplicated some of the Art. 100 definition, in favor of a straightforward requirement for accessibility. This makes the full application of that definition crucial for proper enforcement. The product listing complicates the ability of the inspection community to regulate these devices. This amendment provides clear and easily enforceable statements as to how large an opening is considered to afford the required interior access, together with allowances for different shapes and a moderate degree of centerline offset, all of which accommodate long-standing standard plaster ring and related cover designs. The exception creates an appropriately limited allowance that still meets the intended the policy objectives of the Code.

This MEC amendment is intended to anticipate a NEC TIA that will probably issue very early in the 2023 cycle. By including it in the 2023 MEC processing, much confusion will be averted in our early adopting state. These systems are being used in Massachusetts, and causing significant enforcement concerns accordingly. This language standardizes what should be safe practice.

Committee Action: Accept
Vote on Committee Action: Affirmative, 11, Negative, 1

20-38 [338.10(B)(4) (Mass.)]

Submitter: Frederic P. Hartwell
Proposal Change the header content to read: “Insert an informational note as follows:”, and delete the designation of the note content as being “No. 3.”

Substantiation The formerly existing two informational note are being removed in the 2023 NEC, leaving our note as a stand-alone note. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

20-39 [344.6 (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Delete from the Massachusetts exception the phrase "stainless steel or from".

Substantiation: After extensive research on the availability of different types of nonferrous metal conduit material, it is now clear that stainless steel conduit that is fully listed is easily available from a number of manufacturers, and the allowance for approval in the MEC is no longer supportable.

Committee Action: Accept
Vote on Committee Action: Affirmative, 11; Negative, 1

20-40 [350.10(4) (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Delete this amendment.

Substantiation: This amendment has been incorporated into the NEC. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

20-41 [406.9(C) (Mass.)]

Submitter: Paul Kennedy

Proposal: Replace the NEC language with new language:

Receptacles shall not be installed within or directly over the bath tub or shower stall unit, and 36" in front of that area. The left and right side of the tub and shower area will be excluded from this measurement requirement.

Substantiation: 2017 NEC code language (C) Bathtub and Shower Space.
Receptacles shall not be installed within or directly over a bathtub or shower stall.
The 2017 code language was crystal clear and as an Electrical inspector for over 19 years I have come across this several times and I found it extremely easy to explain to the home owner and the electrician that the restricted area (inside of the tub or shower area) was not allowed. This code section was changed for the 2020 NEC to align with the Luminaire section 410.1O(D) (see attachments, not reproduced in this document).

Committee Action: Accept in Principle. Insert a new MEC amendment as follows:
406.9(C). Revise the entire content to read as follows:
Receptacles shall not be installed within or directly over a bathtub or shower stall.

Committee Statement: The Committee agrees that the 2017 NEC language was superior in terms of clarity and enforceability. This wording, which reinstates the 2017 requirement, is simpler than as proposed, and it accomplishes the proposal's objectives.
Vote on Committee Action: Affirmative, 11; Negative, 1

23-42 [410.16(D) (Mass.)]

Submitter: Paul Kennedy
Proposal: Correct the references in the MEC amendment from the former 410.16(C) to the 2023 NEC location of 410.16(D).

Substantiation: This part of the NEC has been reorganized in the 2023 edition.
.
Committee Action: Accept
Vote on Committee Action: unanimous

23-43 [422.5]

Submitter: Robert P. McGann
Proposal: In 422.5(A)(6), Sump Pumps (hard wired or single receptacle) shall …
Exception: Allowed to forgo GFCI protection.

Substantiation: Multiple times as an inspector and educator I had been made aware of GFCI tripping and basement flooding out while people not home. I have been made aware by U.L. that listed sump pumps have been tested with GFCI protection but 4-6 mA is low as you are not trying avoid electrocution for protection for equipment.

Committee Action: Reject.
Committee Statement: The Committee does not fully understand the substantiation presented, which appears to be entirely inadequate to eliminate the safety requirement.
Vote on Committee Action: unanimous

23-44 [440.14 (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: In the header line, change the note identification from "third" to "second"; in the actual note text, reidentify it as "Informational Note No. 2."

Substantiation: The prior NEC Informational Note No. 2 is being deleted in the 2023 NEC, moving the existing MEC amendment to second position. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept in Principle. In addition to revising the header, delete the internal reference in the note to 440.3(B) by revising the text as follows:
Informational Note No. 2: Article 440 generally only applies ~~See 440.3(B) for general provisions regarding the inapplicability of Article 440~~ to equipment that ~~does not incorporate~~ incorporates hermetic refrigerant motor-compressors. See also 430.109(B) for specific provisions governing the disconnecting requirements for such equipment, wherever located, that uses a motor that is 1/8 hp or less.
Committee Statement: The 2023 NEC is also deleting 440.3(B). This action preserves the validity and usefulness of the informational note.
Vote on Committee Action: unanimous

23-45 [517.13 (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Change the reference in the header line from 517.13(B)(1) so the header will read: "517.13. Delete the exception."

Substantiation: The NEC is being reorganized, and the text under exception now will stand alone as the parent text, with the objectionable exception as the only exception. This change makes no substantive change in the MEC. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-46 [551.71 (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Delete this amendment.

Substantiation: This material is being incorporated into the 2023 NEC. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-47 [555.13)]

Submitter: Frederic P. Hartwell
Proposal: Revise the concluding portion of the first sentence and add two additional sentences immediately following, all to read as follows:

"shall be connected to the grounding bus in the panelboard using insulated or covered conductors not smaller than 8 AWG. Conductors subject to routine flexure such as by changes in water levels shall be insulated and stranded copper. Conductors not subject to flexure shall be permitted to be solid bare copper."

Substantiation: By repositioning the word "solid" this revision removes the requirement for "solid" conductors that are insulated or covered, and only applies it to bare conductors. Marinas have piers that are routinely in motion, and for which solid conductors will prematurely fail due to flexure. The language in this new NEC rule is duplicated from 682.33(C)(1), which is an exposure that does not involve routine flexure. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC. This is a pending TIA. It has been reworded to clarify the circumstances under which solid copper is permitted, and also includes mandatory language around stranding that correlates with the substantiation supporting the TIA.

Committee Action: Accept the withdrawal of this proposal by the submitter.

Committee Statement: This material was issued by the NFPA Standards Council at the meeting that issued the 2023 NEC, and it will appear in the first printing. It will therefore take effect automatically at the same time as the full 2023 NEC, and this amendment is unnecessary.
Vote on Committee Action: no vote

23-48 [555.33]

Submitter: Frederic P. Hartwell
Proposal: Revise the subject of the opening sentence by inserting the words "electrical components within" so it will read "All electrical components within electrical equipment (excluding wiring methods) and connections not intended for operation while submerged…"

Substantiation: This change removes the inadvertent application of the rule to the entirety of power pedestals and the like, even though they are designed and listed for the intended application. Their interiors meet the prescribed clearances, but the literal text would otherwise require such pedestals (which qualify as equipment) to be raised on platforms, which was never intended. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC. There is a pending TIA on this topic.

Committee Action: Accept the withdrawal of this proposal by the submitter.
Committee Statement: This material was issued by the NFPA Standards Council at the meeting that issued the 2023 NEC, and it will appear in the first printing. It will therefore take effect automatically at the same time as the full 2023 NEC, and this amendment is unnecessary.
Vote on Committee Action: no vote

23-49 [555.35]

Submitter: Frederic P. Hartwell
Proposal: Insert a new MEC amendment to NEC 555.35 as follows:
Delete (A) and renumber (B) through (E) as (A) through (D) accordingly.

Substantiation: This is a pending TIA that creates a major change in the NEC, with very little substantiation at any stage of the 2023 NEC development process. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC. If the TIA is in fact issued, we must entertain whether the MEC should so exceed the rules in the NEC on this topic. The entirety of the substantiation for the removal of GFPE requirements for sources that directly supply docking facilities or wharfs is as follows:
"This change recognizes the difficulty of providing GFPE protection on sources that provide power to docking facilities. Removing (A) does not reduce the safety of the electrical system. Changes in Article 555 have had a considerable impact on electrical safety for these applications. Without this change, technical challenges could lead to reduction of safety due to ignoring the GFPE or other requirements. Deleting (A) removes redundancy and will ensure proper adherence to the requirements and instills confidence in the language to the electrical professional."

Committee Action: Accept the withdrawal of this proposal by the submitter.
Committee Statement: This material was issued by the NFPA Standards Council at the meeting that issued the 2023 NEC, and it will appear in the first printing. It will therefore take effect automatically at the same time as the full 2023 NEC, and this amendment is unnecessary.
Vote on Committee Action: no vote

23-50 [680.21(A)(1) (Mass.)]
Submitter: Frederic P. Hartwell
Proposal: Delete this amendment.

Substantiation: On close examination, the 2023 NEC will effectively incorporate the substance of this amendment because it will include both corrosive and wet locations in the 12 AWG copper (minimum) EGC requirement. The MEC, working from the other end, includes only dry, noncorrosive environments in its exclusion. This makes the only difference for the enhanced EGC coverage being the inclusion of damp, noncorrosive locations in the MEC exclusion. This appears to be insufficient to justify the continuance of a MEC exception on this coverage. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-51 [680.23(B)(2)(a))]
Submitter: Frederic P. Hartwell
Proposal: Insert a new MEC amendment as follows:
680.23(B)(2)(a) Amend this provision to read as follows:
"(a) *Metal Conduit.* Metal conduit shall be listed stainless steel or approved red brass."

Substantiation: This proposal follows from the analysis that underlies the rewording proposal covering the existing MEC amendment to 344.6. A listing requirement for red brass heavy wall conduit effectively removes it from the Code, and has done so for over 30 years. On the other hand, listed stainless steel conduits are now readily available. This section in Article 680\ included a Chapter 6 amendment to the Art. 344 listing requirement (allowing approval) for over 20 years, but that allowance was removed in the prior cycle. This amendment restores both the prior permission, as well as the customary applicability of the MEC 344.6 exception.

Committee Action: Accept
Vote on Committee Action: Affirmative, 11; Negative, 1

23-52 [680.26(B)(2)(b) (Mass.)]
Submitter: Jack Lyons
Proposal: Reinstate the current deleted Section (680.26(B)(2)(b) and modify #1 and #4 with the following language
#1 At least two minimum 8 AWG bare solid copper conductors shall be provided.
#4 The two required conductors shall be installed as follows; one copper ring within 300 mm to 450 mm and the other copper ring 600 mm to 900 mm from the inside edge of the pool

Substantiation: The acceptance of the Massachusetts amendment was based on testing between the copper ring around a pool and a copper mesh that created an equipotential plane around the perimeter of a pool. The Testing did not show that the copper ring was deficient to the level of electrical hazard to humans. As the Massachusetts Advisory Committee has a responsibility to ensure safety, I recommend we accept this proposed modification to the section to eliminate the need for an expensive solution to a problem that doesn't or hasn't existed in the Commonwealth. The addition ring of copper is only a small fraction of the

alternative in material and cost but should result in the same safety because of the second ring. The second ring only extends out to the three feet required by this section but the inner ring gives the pool owner some surety that safety has been approved by an additional ring closer to the pool edge. Where one has proven to be safe and effective, the additional ring can only provide addition safety further from the inside edge of the pool.

Committee Action: Reject
Committee Statement: The Committee disagrees with the substantiation. The testing referenced in the substantiation demonstrated that a voltage gradient of around 16 volts imposed a current flow into a test probe calibrated to approximate wet skin and located above a single-wire bond could result in a current flow of 80 mA. This is an extremely dangerous current, one capable of lethality in susceptible individuals. The same testing carried out over a grid bond resulted a few milliamps at most. The MEC amendment is one of the most carefully and exhaustively substantiated amendments ever placed in the MEC.
Vote on Committee Action: Affirmative, 11; Negative, 1

23-53 [680.74(A) (Mass.]

Submitter: Frederic P. Hartwell
Proposal: Revise the second sentence of the amendment to read:
"Delete Exception No. 1 and Exception No. 3, and designate Exception No. 2 as Exception

Substantiation: The 2023 NEC will include a third exception covering metal device faceplates, but that is entirely insufficient to include all the items that need coverage. In addition, the minor NEC allowances fail to address the major technical issue involved. This section in the 2017 NEC was revised to line up with the comparable requirements for hot tubs in 680.43(D). This drastically increased installation costs without a shred of genuine substantiation. Hot tub bonding requirements address legitimate drowning exposures that can result from very small voltage gradients. Hydromassage bathtubs do not present such exposures, which is why this section has always had different requirements. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.
Committee Action: Accept
Vote on Committee Action: unanimous

23-54 [690.12]

Submitter: Peter Diamond
Proposal: Insert a new MEC amendment as follows:
690.12. Rapid Shutdown of PV Systems on Buildings.
PV system circuits installed on or in buildings shall include a shutdown function to reduce shock hazard for firefighters in accordance with 690.12(A) through (D). The requirements of this section shall apply to existing PV system circuits installed on or within buildings that are removed and reinstalled.

Substantiation: Older PV systems without a rapid shutdown function are being removed and reinstalled as part of replacing the roof shingles for example. The installation of a rapid shutdown system as part of the reinstallation will make the system much safer for firefighters.

Committee Action: Reject
Committee Statement: The Committee believes this approach will result in substantial political resistance given the cost burden of such retrofits. The Committee is unwilling to single out the solar industry for a

limitation on grandfathering that is inconsistent with countless other safety improvements over the years in the NEC, ones that nevertheless are generally unenforceable when arising through maintenance.
Vote on Committee Action: unanimous

23-55 [700.10(D) (Mass.)]
Submitter: Lawrence W. Forshner
Proposal: 700.10(D). Revise as follows:
700.10 (D)(l) Occupancies. Emergency systems shall meet the additional requirements in 700.10(D)(2) through (4) in all applicable occupancies.

Substantiation: Panel 13 in the previous code cycle renumbered section 700. IO (D). The Mass Amendment 2020 code was not revised accordingly.
This proposal also includes the inclusion of 700.1O(D) (2) (I). Which I am in favor off even if we reject my proposal to change "spaces or areas" to "occupancies".
It should be understood that the fire protection requirements for electrical conductors and equipment required in CMR 780 associated with smoke control, fire service access elevators, smoke proof enclosures (stairwell pressurization) etc. are not correlated to Article 700 MEC unless identified as such in Chapter 27 CMR 780.

Committee Action: Accept the submitters request to withdraw the proposal.
Vote on Committee Action: no vote

23-56 [700.10(D)(2)(1) (Mass.)]
Submitter: Lawrence W. Forshner
Proposal: [Section No. 700. 10(D) (2) (1)]
(1) The cable or raceway is installed in ~~spaces or areas that~~ occupancies that are fully protected by an approved automatic fire protection system.

Informational Note I. See .NFPA 13 2022 Standard for the Installation of Sprinkler Systems Chapter 9 Sprinkler Location Requirements.

Substantiation: Please sec additional information attached. Public Comment 215 was not reviewed by panel 13. It was grouped with comments pertaining to “concrete” panel comment is erroneous.
Attached is the accepted proposal from the 2005 code that accepted ""spaces or areas” it had no technical substantiation and contradicted what is now Chapter 9 2022 in NFPA 13.
··”1.1.3 This standard is written with the assumption that the sprinkler system shall be designed to protect against a single fire originating within the building’
··”9.1.1(4) Sprinklers shall be permitted to be omitted from areas specifically allowed by this chapter.’
··”A.9.1.1 a building is considered sprinklered throughout when protected in accordance with the requirements of this standard."
··”A.9.1 ... Where buildings or portions of buildings are of combustible construction or contain combustible material. standard Fire Barriers should be provided to separate the areas that are sprinklered protected from adjoining un-sprinklered areas.”
9.2.1.16 Sprinklers shall not be required in a vertical pipe chase under 10 sq ft with no source of ignition.
Bottom line: Chapter 9 of NFPA 13 addresses voids. shafts and interstitial areas extensively and when the installation is in conformance with the standard the 250 Technical Committee Members responsible for

NFPA 13 do not consider those areas unprotected. or any more susceptible to fire than any other location in the building.

Committee Action: Accept in Principle. In the existing MEC amendment to 700.10(D), third roman numeral heading, change the present “Delete (1) in the resulting (D)(1), renumber (2) through (5) as (1) through (4)” to read “In the resulting (D)(3) change “700.10(D)(2)” to read “700.10(D)(1).”
Committee Statement: This action restores the text of NEC 700.10(D)(2)(1) to full force and effect, and therefore restores the validity of wiring in areas deemed fully protected by sprinklers even if such sprinklers are not specifically directed at the feeder conductors. If the building is protected from fire, the safety objectives are met. This is the intent of the proposal, and the Committee is in agreement. The elimination of occupancy limitations from the scope of the MEC continues unchanged. The last sentence of the Committee action correlates the NEC reference to 700.10(D)(2) with this change, because this NEC provision is now 700.10(D)(1).
Vote on Committee Action: unanimous

23-57 [700.12(H)(2)(2) (Mass.)]

Submitter: Frederic P. Hartwell
Proposal: Relocate and reword the header line from 700.12(I)(2)(2) to “700.12(H)(2)(2). In the third sentence, delete the word “also”. Then delete the second sentence that reads: ”Flexible cord- and plug-connection shall be permitted provided that the cord does not exceed 900 mm (3 ft) in length.”

Substantiation: This section is being rearranged in the NEC. This amendment retains the prior technical content. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

23-58 [[701.12(I) (Mass.)]

Submitter: Frederic P, Hartwell
Proposal: Delete this amendment.

Substantiation: This NEC rule is being changed to a simple reference to the rule in Article 700. Therefore, this amendment will no longer be required. This proposal is submitted by the Secretary pursuant to his responsibilities to correlate provisions in CMR 12 with developments in the NEC.

Committee Action: Accept
Vote on Committee Action: unanimous

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APPENDIX THREE
RECORD OF COMMITTEE ACTIONS ON ALL COMMENTS RECEIVED ON ACTIONS PROPOSED FOR THE MASSACHUSETTS ELECTRICAL CODE, 2020 NEC EDITION

[Secretary's Note: Due to the bureaucratic challenges to achieving a timely adoption of the MEC in this cycle, a conventional comment period was not able to be scheduled. Instead, the Committee relied on the opportunity for public comments directed to the BFPR as part of the statutory provisions requiring advertisement of all proposed changes ahead of the scheduled public hearing. This hearing occurred during the first part of the BFPR meeting to promulgate the next Code edition. Several such comments were received, all of which did address actions on public proposals received in this cycle. It should be noted that any comment on 527 CMR 12.00 would have been in order because the enabling statute affords the public the opportunity to comment on any text proposed for promulgation during or following the hearing provided for this purpose.

In fact, the overwhelming majority of comments were exactly that, due to the late emergence of an exceptionally problematic issue regarding incompatibilities between product standards governing appliances and product standards governing GFCI protective devices. The Advisory Committee met virtually the week prior to the BFPR meeting, but was unable to reach a consensus on a recommendation to the BFPR as to the preferred disposition such comments received. The BFPR recognized the difficulties involved and deferred action until its January meeting. The Advisory Committee met in person on January 5, 2023, and recommended the solution written by the Secretary and recorded in this report as interim amendment I-02. This had the status of both an interim amendment because it amended the 2020 MEC and was advanced as an emergency action with immediate effect. It is also being included in the 2023 MEC because it does not require any changes in wording to properly apply in the forthcoming cycle,

The actions described as Committee Actions on Comments C-05 and higher that follow are as extracted and summarized in this report by the Secretary, based on letters received by DFS staff and as reported by staff from notes taken at the December meeting of the BFPR. The intent is to provide a coherent framework for the reader that follows from the development of Interim Amendment I-02. The timing of this discussion did not allow for the usual forms and ballots on this subject.

23-C01 [110.14(A) (Mass.)]

Submitter: Jack Lyons, NEMA

Recommendation: Reject the proposed change to current Massachusetts amendment to Section 110.14:

"110.14(A). Delete the last sentence of the first paragraph and insert the following two sentences in its place:
Connection by means of wire binding screws or studs and nuts having upturned lugs or equivalent shall be permitted for 10 AWG or smaller solid conductors, or conductors with Class B stranding. Where Class C stranded conductors are terminated on and not looped through such terminals, the uninsulated strands shall be completely enclosed within the termination, or the strands at the terminals shall be made solid."

This goes against the principal [sic] of approving and accepting listed products and the testing that goes along with the certification.
The current amendment gives the AHJ the responsibility of approving the product as listed and to ensure the proper termination method is followed.

The proposed amendment is a prescriptive method of termination based on subjective evaluation of how our industry operates. It has does not have the technical basis to substantiate the addition of the rule, only that someone does not like the way things are done! Let us leave the approval to the AHJ as the current amendment allows.

I ask the Board to reject this proposal and stay with the current Massachusetts amendment in 110.14(A).

Committee Action: Reject

Committee Statement: The MEC base amendment to which this comment refers has been part of the MEC for 26 years, having entered the Code as Proposal 96-5 in the 1996 cycle. It addresses a deficiency in the applicable product standards in that they do not limit the use of side-wiring terminals to solid wire, or even to the heavier strands represented in Class B stranding. The Committee action on the underlying proposal recognizes Class B stranding, and thereby further perfects the long-standing rule. The Committee remains convinced that Class C stranding, unless looped through, cannot be reliably terminated on side-wiring terminals unless the strands are made solid.

Vote on Committee Action: Affirmative, 7; Negative, 1; Abstain, 1

20-C02 [110.14(C)(1)(a)(4)]

Submitter: Russell LeBlanc

Proposal: Please revise Section 110.14(C)(1)(a)(4) as follows:

For equipment listed and identified for use with 75°C conductors, and for motors marked with design letters B, C, or D, conductors having an insulation rating of 75°C (167°F) or higher shall be permitted to be used, provided the ampacity of such conductors does not exceed the 75°C (167°F) ampacity.

Substantiation: Using higher rated conductors with their ampacity based on the 75 degree C ampacity should also be permitted for equipment other than motors.

Here are the present options for equipment terminations.

Section 110.14(C)(1)(a)(1) requires 60 degree conductors.

Section 110.14(C)(1)(a)(2) permits 75 degree C or 90 degree C conductors with their ampacity determined at the 60 degree ampacity.

Section 110.14(C)(1)(a)(3) permits 75 degree C conductors to be used on equipment listed for use with 75 degree C conductors with their ampacity based on 75 degree C ampacity! It does not however specifically permit 90 degree conductors to have their ampacity based on the 75 degree C ampacity. The intent may be to allow it, but it falls short of that.

Section 110.14(C)(1)(a)(4) only applies to motors, but does not apply to receptacles, switches, circuit breakers or other equipment! It should, if the equipment is listed and identified for use with 75 degree C conductors.

While the last Sentence in 110.14(C) permits conductors with temperature ratings higher than specified for terminations, it only permits them to be used for ampacity adjustment, correction, or both. My proposed revision will permit 90 degree C conductors to have their ampacity based on the 75 degree ampacity even when no adjustments or corrections are required.

See the following photos I submitted showing a 50-amp receptacle, a 30-amp receptacle, and a circuit breaker, all of which are listed and identified for use with 75 degree conductors with their ampacity based on the 75 degree C conductors. Using 90 degree C conductors with their ampacity based on the 75 degree C ampacity should be permitted for these receptacles and other equipment listed and identified for use with 75 degree conductors.

{Secretary's Note: Three photographs were supplied as described in the substantiation.

Committee Action: Reject

Committee Statement: The Committee disagrees that the present NEC language disallows the use of 90°C rated conductors on terminations rated for 75°C, assuming the current is limited to that allowable for conductors equipped with 75°C rated insulation. The wording of 110.14(C)(1)(a)(3) allows the use of conductors having higher temperature ratings than the default in (a)(1) of 60°C if the terminating equipment is appropriately listed and identified. Such equipment is common, as the included photographs do demonstrate. Taking the photographed 50-amp receptacle as a good example, it is clearly marked "75°C rating." This would allow, for example, a set of 8 AWG THHN conductors to be terminated by right on this device, because they have the requisite ampacity (50A) from the 75°C ampacity column in Table 310.16, and they are also within the permitted size range of 10 to 4 AWG as also marked on the device. Such conductors, after termination on the photographed receptacle, will not exceed a 75°C operating temperature, assuming the related circuit components are sized accordingly. Therefore, those applications are clearly within the scope of 110.14(C)(1)(a)(3). The Committee notes that this comment is a resubmittal of the original proposal, and that no new substantiation was provided.
Vote on Committee Action: unanimous

23-C03 [210.8(A)(3)]

Submitter: Russell LeBlanc

Recommendation: Regarding GFCI protection for receptacle outlets installed outdoors at dwelling units as specified by Section 210.8(A)(3)-

Please renumber the existing exception to exception 1 and add exception 2 to Section 210.8(A)(3) as follows:

Exception 2 to (3): GFCI protection shall not be required for other than 125-volt, 15- and 20- ampere receptacles installed solely for the connection of a recreational vehicle where the receptacle or the enclosure is marked " For Connection of RV Only".

Substantiation: This revision is needed to provide some relief for homeowners like myself who often have receptacles installed at their homes to plug-in their 30-amp or 50-amp campers and trailers while they are parked in their driveway or yard. I often set up and plug in my camper to make repairs or perform system checks before going on camping trips. Some people even like to "camp" in their own driveways! This revision closely resembles the requirements for RV parks in the MEC and T.I.A. 20-8 issued for Section 551.71(F) The informational note in that Section also indicates that a class A GFCI may experience nuisance tripping from appliances used within the RV. Therefore, the relief is needed, otherwise it may be impossible to plug-in an RV at home without tripping a GFCI.

Informational note 2 for 551.71(F) supports the argument that when the RV is plugged in, the receptacle is actually part of a feeder and the requirements of 210.8(A)(3) would not be applicable anyways! But relief is still needed for when the homeowner unplugs the RV, and the receptacle is then considered part of a branch circuit again. My proposed revisions will provide this relief. Otherwise, it may be impossible for RV owners to plug-in and power up their campers at home resulting in homeowners coming up with creative and dangerous ways to power their campers! My proposal aims at preventing those creative and dangerous solutions from happening.

Committee Action: Reject

Committee Statement: The committee is concerned that the outlet covered by the proposed allowance may not always be used to supply a recreational vehicle, and any other load would not have the anticipated GFCI protection. The Committee notes that this comment is a resubmittal of the original proposal, and that no new substantiation was provided.

Vote on Committee Action: unanimous

23-C04 [210.8 (Mass.), Comment on Interim amendment I-02]
Submitter: Jack Lyons, NEMA
Recommendation: Reject a proposal to rollback to previous code language in 210.8.
Substantiation: This proposed amendment will reduce safety for the citizen of Massachusetts. It relates to the protection of shock hazard with the use of specific appliances in all residential kitchens. An amendment to 210.8 will reduce the coverage of GFCI protection for these appliances in kitchens.

A few Items to consider.

a. There has been concern from developers of housing projects that certain cooking stoves and ranges are not compatible with GFCI technology. This is a misleading statement. The NEC has required GFCI in many locations for over 50 years. The technology prevents stray currents from flowing from its normal path to another path, specifically a Grounded path to the source. The equipment ground or earth is a good example of this alternate path and when a human is the pathway, it has the potential of seriously injuring or be deadly to that person. The amount of current in the Product Safety Standard for GFCI technology trips is anywhere between .004-.006 amperes or 4-6 mA.

b. NEMA has assembled reports on unwanted tripping of GFCI and ranges to help resolve some of the installation requirement based on 210.8, which covers Branch Circuits GFCI requirements within Residential and Commercial occupancies. There are several instances where a specific brand of range tends to trip the GFCI circuit protector due to leakage current over the Equipment Grounding Conductor. This a violation of the National Electrical Code, specifically 250.6. It also introduces an electrical hazard to the tenants of the dwelling. Over the years, the NEC has mandated GFCI protection of Branch Circuits and equipment. 210.8(B) has required GFCI in Commercial Kitchens for several cycles due to the shock hazards that are present in those areas. The rules in 210.8(A) cover residential kitchens and equipment which exhibits the same shock hazard that is present in those locations.

c. A resolution was found very effective in most situations that were reported. The moisture level in the heating elements absorbed from the manufacturing process and/or shipping allows leakage current through the equipment grounding conductor at levels exceeding 20 Milliamps. This problem also creates an open voltage of 50 volts AC/ 60Hz when the ground is open. As mentioned previously, the tripping level of GFCIs that monitors the unbalance of current from the normal circuit conductors is 4-6 Milliamps. Therefore, it is recommended that the ranges in question have a 15-to-20-minute heating cycle for all elements to burn off this moisture and eliminate or reduce the leakage below the tripping level of the GFCI. The GFCI is doing the job as it was intended to do and as it has for over fifty years.

d. The other method in the 2020 NEC is to hard wire the range contributing to extra cost but would reduce safety by eliminating the GFCI branch Circuit protection. This option has been removed in the 2023 NEC as the hazard still exists. We would recommend continuing putting the ranges through a heating cycle for all elements which has proven successful for several developers we have worked with.

My opposition for any consideration of amending any rules in 210.8 is safety oriented based on facts of test and cases of injuries involving residential ranges and other cooking appliances. Therefore, I recommend the Board reject any proposal to 210.8.

Committee action: Reject
Committee Statement: The Committee is satisfied that genuine and likely increasing numbers of incompatibilities are emerging between product standards for GFCI protective devices and product standards governing appliances protected by them. At the time of the vote on this comment, there are reliable reports of large numbers of families in affordable housing now coming on-line that are relegated to cooking on hot plates. In addition, federal DoE standards are rapidly moving in the direction, on grounds of energy efficiency, of requiring internal improvements in equipment using hermetic motor-compressors generally. These efforts have resulted in the well-substantiated compatibility issues between outdoor HVAC condensers and GFCIs that have resulted in a NEC TIA exempting this equipment from GFCI coverage. If, as seems likely, these rules are extended to refrigerators, then our citizens will be asked to roll their new refrigerators into the dining room. This is untenable, and the Committee understands clearly that this is now squarely in the governor's office. If the MEC does not get in front of this, we will lose control of our code to other branches of government. The action on the interim amendment, also framed as permanent Code, does this in the most responsible method available.

23-C05 [210.8; Rule 11], Comment on Interim amendment I-02]

Submitter: Randall Cooper, AHAM; (Note: identical submittal received from Greg Woyczynski, AHAM)
Recommendation: Reject acceptance of changes in NEC 210.8(A) and 210.8(D)
Substantiation: The Association of Home Appliance Manufacturers (AHAM) respectfully submits the following comments to the Department of Fire Service (DFS) on the Massachusetts Electrical Code (amendments), Regulation 527 12.00.

AHAM supports DFS in its efforts to maintain a state electrical code. However, AHAM has concerns with the proposal to adopt the 2023 National Electrical Code (NEC), in particular Articles 210.8(A) and 210.8(D). Both of these articles deal with shock protection provided by Ground-Fault Circuit-Interrupters (GFCIs). Compared to the 2020 NEC, the 2023 edition requires GFCIs in more locations within the home, and requires GFCI protection for more appliances. Due to unacceptable levels of nuisance tripping, home appliance manufacturers request the following amendments to the Massachusetts electrical code:

- use language from the 2017 NEC for article 210.8(A),
- add language at the end of article 210.8(A) from the Canadian Electrical Code (Rules 26- 700 and 26-704): *The requirement for a Class A ground fault circuit interrupter protection is not intended to apply to receptacles supplying appliances located behind such appliances as washers, dryers, fridges, ranges, built-in microwaves, and other similar appliances, provided that those receptacles, by virtue of their location, are rendered essentially inaccessible for use for other portable appliances.*
- use language from the 2020 NEC for article 210.8(D),
- add a requirement stating that GFCIs which trip below 4mA, at any frequency, shall not be installed

I. GFCIs need to be modernized.

The GFCI was first introduced into the NEC when electrical loads in the home were operating on 60 Hertz (Hz) electricity. Because of this uniform 60Hz operation, GFCIs based tripping requirements upon 60Hz measurements. The same GFCI trip and no trip requirements remain in place today.

Present requirements for GFCI tripping are in contrast with electronic loads in today's home. Virtually every modern AC electrical product has parts of the appliance that are operating at frequencies other than 60Hz. This change is due to implementation of components like LED drivers, switched-mode power supplies, and variable frequency drives. Modern components have been implemented to meet consumer demands but also to comply with mandatory energy efficiency regulations set by the U.S. Department of Energy.

As electrical loads in the home have been modernized, GFCIs need to be modernized as well. Presently, there are no existing requirements for how a GFCI shall react to frequencies other than 60Hz. This lack of regulation allows any GFCI manufacturer to choose any trip threshold for alternate frequencies. Some GFCI manufacturers have set trip thresholds such that the device is oversensitive and trips on safe levels of high frequency emissions for which there are no known health risks. This is commonly known as nuisance tripping—cases where critical appliances are operating at safe conditions, but the GFCI trips anyways, improperly disabling the appliance. Further technical details can be found in AHAM's white paper, attached to this document in Appendix A. {This document is not reproduced here.}

II Other states have implemented GFCI exceptions

GFCI nuisance tripping issues are happening across the county. These issues come up so often that other states have already deviated from the National Electrical Code to not require GFCIs in some instances, better ensuring that critical appliances can be used when needed by the consumer. Examples include Georgia, North Carolina, Oregon, and South Carolina. Full text of these state's amendments are attached to this document in Appendix B with pertinent sections highlighted.

III. Safety standards are being updated

Home appliance manufacturers have a role to play in reducing nuisance tripping. The home appliance industry has completed solutions and is continuing to work on updating products as well as standards to prevent nuisance tripping. AHAM encourages DFS to look at the recently published changes in UL 858, Safety Standard for Household Electric Ranges, and the recently proposed changes in UL 101, Safety Standard for Leakage Current of Utilization Equipment. UL 858 requirements will be effective in 2025, allowing time for designs and manufacturing processes to be updated.

We have not yet seen updates or proposals to the GFCI standard, UL 943. There is a UL 943 Task Group, made up of mostly GFCI manufacturers, that is working to update the GFCI for modern electrical loads. AHAM believes this GFCI standards work needs to be completed, published, and made a requirement before GFCI installation can be expanded in electrical codes, as is seen in the 2020 and 2023 electrical codes.

IV. Massachusetts residents are being impacted now

A coalition of housing providers, and their contractors, have collected data proving more than 1700 units are currently affected by nuisance tripping, with more than 1600 units that may be affected in 2023 without proper code amendments. While standards updates will help in providing future solutions, AHAM urges DFS to provide relief now with code amendments.

AHAM asks that DFS take a holistic approach to safety in the home. Appliances like refrigerators, dehumidifiers, room air conditioners, and cooktops are critical for the safety and well-being of the consumer. Just because GFCIs have been able to protect such appliances in the past, does not mean that GFCIs can adequately protect appliances today.

Again, AHAM asks that Massachusetts amend the 2020 and 2023 NEC in order to provide safe and practical electrical codes. AHAM appreciates the opportunity to submit these comments on DFS's electrical code rulemaking and would be glad to discuss these matters in more detail should you so request.

Committee Action: Accept in Principle, using Interim amendment I-02 that is being continued into effect as part of the 2023 MEC. This action accepts the principle of providing relief, but through a special inspection procedure that adequately preserves the safety objectives of GFCI protection in the near future, with a sunset provision that should allow for the convergence of applicable product standards.
Vote on Committee Action: Affirmative, 8, Negative, 1

23-C06 [210.8; Rule 11], Comment on Interim amendment I-02
Submitter: Emily Jones, Senior Program Officer, Local Initiatives Support Corporation
(co-submitter, Amy Schectman)
Recommendation: (Paraphrased by the Secretary) Exempt 240-volt circuits from the GFCI requirement (see below for detail)
Substantiation: Dear Massachusetts Electrical Advisory Committee c/o Paul Vigneau, Director:

From a vantage point of deep respect for your work, we are writing on behalf of a group of 35 affordable housing stakeholders in Massachusetts. We hope you can provide us some guidance about how to address a critical, time-sensitive issue.

Many affordable housing stakeholders are moving to all-electric facilities in order to be good environmental stewards. This includes electric stoves in residential units. The challenge is that the most recent building code requires us to install Ground Fault Circuit Interrupters (GFCI) on 240-volt circuits, which is what most affordable housing stakeholders have in their housing.

The stove manufacturers have not caught up with this new requirement and the consequence is that when residents try to cook, it trips the breaker. It takes some time for the maintenance personnel to fix this, and so in effect residents are no longer able to cook. This is a particular hardship given affordable housing residents' low incomes – and of course it is much healthier to cook at home.

While one other way to meet this code requirement is to have sinks more than 6 feet from the stove, this is impossible in affordable housing where unit sizes do not permit this separation. In fact, state funding requirements prevent larger units.

The other way, to hardwire the stoves, poses a hardship. It costs hundreds of dollars to retrofit the wiring for each stove, it increases the staffing time to turnovers and for maintenance that is already scarce in affordable housing, and it still requires documentation and approval from the local inspector.

Many affordable housing providers are already facing this problem. So far, 2Life Communities, Beacon Communities, Cambridge Housing Authority, Codman Square Neighborhood Development Corporation, Fenway CDC, Housing Corporation of Arlington, Planning Office for Urban Affairs, The Neighborhood Developers, and others have experienced this situation. We are cognizant that this is just the tip of the iceberg of many more providers who will experience this situation once new construction projects are complete and placed into service later this year and next.

We are well aware that your office is concerned with fire safety and has good reasons for this new code – we are simply hoping that we might find a temporary fix between now and the time the relevant UL standard for electric ranges (UL 858) has been updated to prevent this nuisance tripping issue. If, until then, 240-volt circuits can be exempted from the GFCI requirement, we could work together for a longer-term solution.

Until that time, we appreciate any guidance and solutions you can provide to us and to local inspectors, so that property owners can continue the movement toward all-electric appliances, essential for both resident and climate health. We would also be happy to meet with you to share more details on our respective experiences with this issue.

Thank you for your consideration and best regards,

Local Initiatives Support Corporation (LISC) Boston
Massachusetts Association of Community Development Corporations (MACDC)
2Life Communities Beacon Communities LLC
Boston Housing Authority (BHA) Cambridge Housing Authority (CHA)
Coalition for a Better Acre (CBA)
Codman Square Neighborhood Development Corporation (CSNDC)
Community Development Partnership (CDP)
Community Teamwork Inc (CTI)
Conservation Law Foundation (CLF)
Dellbrook | JKS
Dorchester Bay Economic Development Corporation
East Boston Community Development Corporation (EBCDC)
Fenway CDC
Henry Joseph & Associates
Hilltown Community Development
Homeowner's Rehab, Inc. (HRI)
Housing Corporation of Arlington (HCA)
Main South CDC
Maloney Properties
Metro West Collaborative Development
Mission Hill Neighborhood Housing Services (MHNHS)
Neighborhood of Affordable Housing (NOAH)
Oxbow Urban LLC
Petersen Engineering
Planning Office for Urban Affairs (POUA)
Prellwitz Chilinski Associates (PCA)
Preservation of Affordable Housing (POAH)
Somerville Community Corporation (SCC)
South Boston Neighborhood Development Corporation
The Narrow Gate Architecture
The Neighborhood Developers (TND)
Valley Community Development
Waypoint KLA

Committee Action: Accept in Principle, using Interim amendment I-02 that is being continued into effect as part of the 2023 MEC. This action accepts the principle of providing relief, but through a special inspection procedure that adequately preserves the safety objectives of GFCI protection in the near future, with a sunset provision that should allow for the convergence of applicable product standards.
Vote on Committee Action: Affirmative, 8; Negative, 1

23-C07 [210.8; Rule 11], Comment on Interim amendment I-02
Submitter: Mike Kennealy, Secretary, Executive Office of Housing and Economic Development
Recommendation: (Paraphrased by the Secretary) Consider targeted amendments to the 2023 NEC that eliminate requirements for GFCI protection for outlets within 6-ft of a kitchen sink.

Substantiation: I am writing to urge you to consider targeted amendments for the Massachusetts Electrical Code (527 CMR 12.00), which is to be based on the 2023 National Electrical Code (NEC), as published by the National Fire Protection Association (NFPA) as NFPA 70.

Specifically, I urge you to consider amendments to the provisions in the new code requiring Ground-Fault Current Interrupters (GFCIs) for outlets within 6 feet of a kitchen sink, as necessary to allow the continued use of electric stovetops and ranges that are not GFCI compatible.

The 2020 edition of NFPA 70, National Electric Code added language requiring Ground- Fault Current Interrupters (GFCIs) for household branch circuits in new constructions and significant remodels. Section 210.8(A) requires GFCI protection for receptacles installed within 6 feet from the top inside edge of the bowl of the sink. In many new homes—and especially in smaller homes occupied low and moderate income families—the electrical outlets for household ranges are located near a kitchen sink, and therefore require GFCI protection.

It is the understanding of my staff within the Executive Office of Housing and Economic Development's (EOHED) that when this code proposal was submitted to the NEC, it was not submitted to the relevant product safety standards for household appliances that plug into such outlets. As a result, no evaluation was conducted to evaluate issues of compatibility between these household appliances and GFCI devices. Since range manufacturers have not been required to evaluate GFCI compatibility in the respective appliance standards, several electric ranges have limitations when powered by a GFCI-protected circuit. As a result, many electric ranges and stovetops trip the GFCI even though they are operating within all applicable safety parameters. We have been told that the appliance manufacturers are not able to correct this problem within a reasonable timeframe.

As Secretary of Housing and Economic Development, I have received letters and calls from numerous affordable housing advocates complaining that many low and moderate income families have kitchens equipped with ranges that are incompatible with GFCI outlets. I know many of these advocates have submitted their concerns to you directly, so I will not repeat them at length here. Suffice to say, according to some advocates, the problem is so acute that many households are effectively without working kitchens. As one letter stated: "EVERY time a resident attempts to cook, they trip the breakers. This nuisance tripping, happening in all the apartments built or renovated now, effectively means that entire low-income communities are without usable kitchens."

This situation is untenable, and should be addressed in the new version of the code you are about to adopt. The current workarounds are either to hard-wire the range, or reconfigure the kitchen. Given the cost associated with each option, neither is a particularly practical for a low- income family. The best solution—and the one I am urging you to adopt—is to roll this requirement back to the 2017 edition of the NEC, eliminating the need for a GFCI breaker in these circumstances.

I know safety is your primary concern, and rightly so. In this case, the changes I am requesting will allow many low and moderate income families to continue using their kitchen appliances without any undue increase in risk. I appreciate your consideration of this necessary amendment.

Committee Action: Accept in Principle, using Interim amendment I-02 that is being continued into effect as part of the 2023 MEC. This action accepts the principle of providing relief, but through a special inspection procedure that adequately preserves the safety objectives of GFCI protection in the near future, with a sunset provision that should allow for the convergence of applicable product standards.
Vote on Committee Action: Affirmative, 8, Negative, 1

23-C08 [210.8; Rule 11], Comment on Interim amendment I-02
Submitter: Edward Connelly, representing New Ecology, Inc. and Petersen Engineering
Recommendation: (Paraphrased by the Secretary) Address issues with 240V electric range, cooktop and wall oven appliances, to l cover both 2020 NEC and 2023 NEC applications.
Substantiation: Thank you for the opportunity to provide public comment on the technical aspects of the 2020 NEC and the 2023 NEC code as drafted in regard to the requirement for ground fault protection for electric ranges, cooktops and wall ovens. We share your concerns of safety for Massachusetts residents.

Our clients provide free-standing kitchen appliances with a UL Listed seal, a nationally recognized safety and sustainability standards. The 2020 code as written and potential 2023 NEC adoption, as recommended by the Massachusetts Electrical Advisory Committee (MEAC) appears to not coordinate with the updated UL Listing (UL 848) of the electric ranges, cooktops and wall ovens that will limit the leakage current of the appliance. The appliance manufacturers state they are unable to meet this update requirement for limiting leakage current until 2025. In the meantime, the 2020 and 2023 NEC is requiring ground fault protection for electric ranges, cooktops and wall ovens that do not meet this updated UL listing requirement limiting the leakage current, and the result is nuisance tripping of the ground fault portion of the circuit breaker. This is causing our clients' building occupants to endure GFCI nuisance tripping hardship and prohibiting the use of the electric ranges. Prior to the update of UL 848, UL determined that free-standing appliances to be free from a reasonably foreseeable risk of fire and electric shock. We request the committee to wait for the appliance manufacturers to meet the updated UL 848 requirement regarding leakage current before the requirement for ground fault protection is adopted in the Massachusetts Electric Code.

The interoperability issues we are seeing are partly due to the lack of availability of updated GFCIs and updated appliances. The codes, both NEC and MA electrical code, recognize that situations like this may occur and provide a path to roll back requirements to the previous edition.

As per 90.4 Enforcement on the 2020 NEC: *This Code may require new products, constructions, or materials that may not yet be available at the time the Code is adopted. In such event, the authority having jurisdiction may permit the use of the products, constructions, or materials that comply with the most recent previous edition of this Code adopted by the jurisdiction.*

Right now, under the 2020 NEC, there is an opportunity to roll back requirements to the 2017 NEC, which does not require GFCIs on 240V products. If the 2023 NEC is adopted without amendments, the previous edition becomes the 2020 NEC. In this case, the roll back will not provide resolution for 240V products, as both the 2020 and 2023 NEC require such receptacles to have a GFCI.

Respectfully submitting the following comments to the Department of Fire Service (DFS) on the Massachusetts Electrical Code (amendments), Regulation 527 12.00.

1. Need to address issues with 240V electric range, cooktop and wall oven appliances. This needs to be applied to the 2020 code and the 2023 code.

NEC Article 210.8(A)(7) – Consider two revisions to the code section
Revision 1: Add exception that allows hardwiring of the electric ranges, cooktops and wall ovens that remove the requirement for ground fault protection.
Revision 2: Add exception that allows removal of the ground fault protection for electric ranges, cooktops and wall ovens.

There is precedent for modifications to the code due to this issue in other states, including Georgia, Iowa, North Carolina, Oregon and South Carolina as well as in Canada and we are happy to provide you with those details upon request.

Thank you for the opportunity to submit these comments on DFS's electrical code rulemaking and would be glad to discuss these matters in more detail should you so request.

Committee Action: Accept in Principle, using Interim amendment I-02 that is being continued into effect as part of the 2023 MEC. This action accepts the principle of providing relief, but through a special inspection procedure that adequately preserves the safety objectives of GFCI protection in the near future, with a sunset provision that should allow for the convergence of applicable product standards.
Vote on Committee Action: Affirmative, 8, Negative, 1

23-C09 [210.8; Rule 11], Comment on Interim amendment I-02
Submitter: Jason Potterf, Technical Leader, Cisco Systems, Inc.
Recommendation: (Paraphrased by the Secretary) Address issues with 240V electric appliance interoperability with both 2020 NEC and 2023 NEC GFCI applications.
Substantiation: Thank you for your time. Cisco Systems is a global technology company, with offices in Boxborough and Boston, that develops, manufactures, and sells networking hardware, telecommunications equipment, and technology services. Several of our employees volunteer on Code Making Panels for the National Electrical Code (NEC) in addition to designing equipment which is installed under the NEC. We design our equipment on the forefront of energy efficiency to fight climate change.

The 2023 NEC seeks to mandate a major expansion of required Ground Fault Circuit Interrupter (GFCI) protection beyond the NEC 2020 requirements. While this desire for expanded safety measures is a noble cause, the IT and appliance industries' sustainability initiatives are threatened by this trend.

Current GFCI testing requirements from Underwriters Laboratories do not include false-tripping tests that are necessary to ensure uninterrupted operation of modern energy-efficient equipment. Efforts to add these tests are still in progress and the NEC has already delayed the GFCI mandate for HVAC systems because of this issue and formed a task group to investigate further. It has not yet taken action in support of a delay for other household critical infrastructure. We are writing to urge you to consider a broader exemption to allow time for UL and GFCI manufacturers to improve their technology.

The effects of these false tripping events are disabled induction cooktops, refrigerators, HVAC equipment, and even your Internet WiFi router. These devices losing power may result in everything from mild annoyance to property damage due to burst pipes in the winter. Loss of emergency communications is also of great concern to Cisco.

Committee Action: Accept in Principle, using Interim amendment I-02 that is being continued into effect as part of the 2023 MEC. This action accepts the principle of providing relief, but through a special inspection procedure that adequately preserves the safety objectives of GFCI protection in the near future, with a sunset provision that should allow for the convergence of applicable product standards.
Vote on Committee Action: Affirmative, 8, Negative, 1

23-C10 [210.8; Rule 11], Comment on Interim amendment I-02

Submitter: James Mitrano, WaypointKLA Inc.
Recommendation: (Paraphrased by the Secretary) Address issues with 240V electric range, cooktop and wall oven appliances, to l cover both 2020 NEC and 2023 NEC applications.
Substantiation: WaypointKLA is a real estate development consultant, providing technical guidance and strategy through the permitting, design and construction process. As former builders and architects we approach the management of the project from a technical perspective.

We have been working with several multifamily housing clients to try to resolve the problem of the incompatibility of electric ranges, cooktops and wall ovens with the GFIC breakers. The nuisance tripping caused by this incompatibility has created significant problems with getting Certificates of Occupancy as well as initial and ongoing occupant habitation.

Our teams have attempted to solve the problem by running the appliances through a series of “load tests” which has been partially successful, under the theoretical assumption there is moisture that needs to be dried out. Other times, we are swapping out appliances and/or buying new ones and then re-burning those also. These attempted solutions have taken extensive time and monies for which the Owner has incurred significant extra costs as this is considered a

change order due to such AHJ changes. We are also finding that if/when a resident does not use the stove/over for a period of time, the breaker tripping reoccurs requiring yet another round of load testing.

From 2022 to 2024, WaypointKLA will be involved with almost 4,000 units of multifamily, affordable housing locally that that are (or will be) affected by this incompatibility. When the issue first arose we all thought it was an anomaly, but now find this is a very serious issue requiring urgent action. We respectfully ask for a reasonable solution to end this hardship while preserving safety.

Committee Action: Accept in Principle, using Interim amendment I-02 that is being continued into effect as part of the 2023 MEC. This action accepts the principle of providing relief, but through a special inspection procedure that adequately preserves the safety objectives of GFCI protection in the near future, with a sunset provision that should allow for the convergence of applicable product standards.
Vote on Committee Action: Affirmative, 8, Negative, 1

23-C11 [210.8; Rule 11], Verbal comments at the BFPR hearing (as summarized by staff) on the subject raised by Interim amendment I-02

Greg Woyczynski from AHAM spoke for public comment. His affiliate Randall Coopers submitted written comment specific to 527 CMR 12.00 articles 210.8(A) and 210(D). Mr. Woyczynski asks that the board look at the nuisance tripping issues caused by GFCI and come up with an solution moving forward. AHAM makes the following statements/ suggestions:

1.) GFCIs need to be modernized
2.) Other states have implemented GFCI exceptions
3.) Safety standards are being updated
4.) Massachusetts residents are being impacted now

Jack Lyons from NEMA spoke for public comment. Mr. Lyons proposes that the committee reject the proposed changes to the current Massachusetts amendment to article 110.14. He also asks the committee rejects the proposal to roll back to the previous language in 210.8 (2017 edition).

Mary Wambui from Planning Office for Urban Affairs ask that we look at the people being affected by implementing the requirements for GFCIs. She serves extremely low-income residents who are being impacted by these changes. Ms. Wambui requests a pause of implementation while a solution can be created. She also requests that the committee talk to low income developers to see the issues.

Elise Selinger representing Peterson Engineering and 2Life Communities asked for MEAC to wait on implementing 527 CMR 12.00 article 210.8(A) until manufactures can become compliant with UL 848 and suggests rolling back to the language in the 2017 edition. Ms. Selinger states that other states and Canada have implemented exceptions for this standard.

Paul Kennedy from BFPR/MEAC spoke to the history of the decision to adopt the base code language for 527 CMR 12.00 article 210.8. Mr. Kennedy emphasized that this is a safety concern.

Jim Mitrano from Waypointkla spoke for public comment about the issues they have with the incompatibility of electric ranges, cooktops and wall ovens with GFCI breakers. The nuisance tripping caused by this incompatibility has created significant problems with getting Certificates of Occupancy as well as initial and ongoing occupant habitation.

Committee Action: With the exception of the Lyons comment (See also 23C-04) which was rejected, the action was to Accept in Principle, using Interim amendment I-02 that is being continued into effect as part of the 2023 MEC. This action accepts the principle of providing relief, but through a special inspection procedure that adequately preserves the safety objectives of GFCI protection in the near future, with a sunset provision that should allow for the convergence of applicable product standards.
Vote on Committee Action: Affirmative, 8, Negative, 1

APPENDIX FOUR

RECORD OF BOARD OF FIRE PREVENTION REGULATIONS (BFPR) ACTIONS TO MODIFY RECOMMENDATIONS OF THE ELECTRICAL CODE ADVISORY COMMITTEE DURING THE PROCESS OF FINAL ADOPTION OF THE MASSACHUSETTS ELECTRICAL CODE, 2020 NEC EDITION

This appendix is a placeholder tor BFPR actions at the end of a cycle. In this cycle, the BFPR made no amendments to the recommendations of the Electrical Code Advisory Committee as recorded in Appendices Two and Three, with the exception of adding a four-word phrase, and correlating sentence in the substantiation, to the Interim action being carried forward as permanent code. Refer to 23-I02 in Appendix Two for complete information.