**Senate File 441 - Introduced**

SENATE FILE 441
BY WEBSTER

## A BILL FOR

An Act relating to the national electrical code.
BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF IOWA:

TLSB 2312XS (3) 90
ss/rn

Section 1. Section 103.1, Code 2023, is amended by adding the following new subsection:

NEW SUBSECTION. 10A. *"National electrical code"* means the national electrical code, 2020 edition, published by the national fire protection association, as modified by section 103.1B, and excluding sections 210.8(F) and 230.67 of the national electrical code.

Sec. 2. NEW SECTION. **103.1B National electrical code — alterations.**

1. *Definitions.* The definition of "accessible, readily" in article 100 of the national electrical code, 2020 edition, is amended to include access to motors for hot spas and similar devices to be made readily accessible by means of a door on hinges or the equivalent.

2. *Ground-fault circuit-interrupter protection for personnel.* Section 210.8 of the national electrical code, 2020 edition, is amended to include that locations not needed are dedicated for appliances and approved by the local authority having jurisdiction as long as it is a single yoke outlet.

3. *Dwelling units.* The first sentence of the first paragraph of section 210.8(A) of the national electrical code, 2020 edition, is amended to provide that all one hundred twenty-five volt, single-phase, fifteen-ampere and twenty-ampere receptacles installed in the locations specified in sections 210.8(A)(1) through 210.8(A)(11) of the national electrical code, 2020 edition, and supplied by single-phase branch circuits rated one hundred fifty volts or less to ground shall have ground-fault circuit-interrupter protection for personnel. In lieu of basements, section 210.8(A) of the national electrical code, 2020 edition, shall apply to unfinished portions or areas of the basement not intended as habitable rooms.

4. *Receptacle outlets in bedroom.* Section 210.12(A) of the national electrical code, 2020 edition, is deleted, and the following means of protection for receptacle outlets in

bedrooms are adopted:

*a.* A listed combination-type arc-fault circuit interrupter, installed to provide protection of the entire branch circuit.

*b.* A listed branch or feeder type arc-fault circuit interrupter installed at the origin of the branch-circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet box on the branch circuit. The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit.

*c.* A listed supplemental arc protection circuit breaker installed at the origin of the branch circuit in combination with a listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet box on the branch circuit where all of the following conditions are met:

(1) The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.

(2) The maximum length of the branch-circuit wiring from the branch-circuit overcurrent device to the first outlet shall not exceed fifteen and two-tenths meters or fifty feet for a fourteen American wire gauge conductor or twenty-one and three-tenths meters or seventy feet for a twelve American wire gauge conductor.

(3) The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit.

*d.* A listed outlet branch-circuit type arc-fault circuit interrupter installed at the first outlet on the branch circuit in combination with a listed branch-circuit overcurrent protective device where all of the following conditions are met:

(1) The branch-circuit wiring shall be continuous from the branch-circuit overcurrent device to the outlet branch-circuit arc-fault circuit interrupter.

(2) The maximum length of the branch-circuit wiring from

the branch-circuit overcurrent device to the first outlet shall not exceed fifteen and two-tenths meters or fifty feet for a fourteen American wire gauge conductor or twenty-one and three-tenths meters or seventy feet for a twelve American wire gauge conductor.

(3) The first outlet box in the branch circuit shall be marked to indicate that it is the first outlet of the circuit.

(4) The combination of the branch-circuit overcurrent device and outlet branch-circuit arc-fault circuit interrupter shall be identified as meeting the requirements for a system combination-type arc-fault circuit interrupter and shall be listed as such.

*e.* If RMC, IMC, EMT, type MC, or steel-armored type AC cables meeting the requirements of section 250.118 of the national electrical code, 2020 edition, metal wire-ways, metal auxiliary gutters, and metal outlet and junction boxes are installed for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, it shall be permitted to install a listed outlet branch-circuit type arc-fault circuit interrupter at the first outlet to provide protection for the remaining portion of the branch circuit.

*f.* Where a listed metal or nonmetallic conduit or tubing or type MC cable is encased in not less than fifty millimeters or two inches of concrete for the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet, it shall be permitted to install a listed outlet branch-circuit type arc-fault circuit interrupter at the first outlet to provide protection for the remaining portion of the branch circuit.

*g.* Where an individual branch circuit to a fire alarm system installed in accordance with 760.41(B) or 760.121(B) of the national electrical code, 2020 edition, is installed in RMC, IMC, EMT, or steel-sheathed cable, type AC or type MC, meeting the requirements of 250.118 of the national electrical code,

2020 edition, with metal outlet and junction boxes, arc-fault circuit interrupter protection may be omitted.

5. *Guest rooms and guest suites.* In lieu of the requirements of section 210.12(C) of the national electrical code, 2020 edition, all one hundred twenty volt, single-phase, fifteen-ampere and twenty-ampere branch circuits supplying outlets and devices installed in guest rooms and guest suites of hotels and motels shall be protected by any of the means described in subsection 4, paragraphs *"a"* through *"f"*.

6. *Branch circuit extensions or modifications.* In lieu of the requirements of section 210.12(D) of the national electrical code, 2020 edition, in any of the areas specified in section 210.12(B) of the national electrical code, 2020 edition, where branch-circuit wiring is modified, replaced, or extended, the branch circuit shall be protected by one of the following, except that arc-fault circuit interruption protection shall not be required where the extension of the existing conductors is not more than one and eight-tenths meters or six feet and does not include any additional outlets or devices:

*a.* A listed combination-type arc-fault circuit interrupter located at the origin of the branch circuit.

*b.* A listed outlet branch-circuit type arc-fault circuit interrupter located at the first receptacle outlet of the existing branch circuit.

7. *Island countertop spacing.* With respect to section 210.52(C)(2) of the national electrical code, 2020 edition, a length greater than six feet needs two outlets, and then every four feet, if there is a break in the countertop, two outlets are needed, one on each side of the break.

8. *Dwelling united receptacle outlets in bathrooms.* With respect to section 210.52(D) of the national electrical code, 2020 edition, no outlet, switch, or fixture shall be installed within three feet of a tub or shower as measured from the tub surround horizontally, unless protected by a ground-fault

circuit interrupter before the device.

9. *Residential circuit calculations.* With respect to article 220 of the national electrical code, 2020 edition, the following calculations shall apply for residential circuits:

*a.* For lighting outlets, ten per circuit, unless approved by the authority having jurisdiction.

*b.* For convenience outlets in general duplex receptacles, ten per circuit.

*c.* For convenience outlets in a kitchen, two per circuit. Receptacles on the same circuit shall not service the same area of the countertop.

10. *Wiring methods for one thousand volts, nominal, or less.* Sections one, two, seven, and fourteen of section 230.43 of the national electrical code, 2020 edition, are deleted.

11. *Service equipment —— disconnecting means.* With respect to section 230.70(A) of the national electrical code, 2020 edition, any nonfused or unprotected service entrance conductors entering a home or business extending over ten feet from the point of entrance into the building require a disconnect to be installed on the building exterior.

12. *Feeder taps.* With respect to section 240.21(B) of the national electrical code, 2020 edition, no taps or splices shall be allowed on feeders or subfeeders unless approved by the local authority having jurisdiction.

13. *Cables and raceways installed in shallow grooves.* With respect to section 300.4(F) of the national electrical code, 2020 edition, all connections which use the EMT conduit, flexible metallic tubing, sealtight metallic conduit, et cetera, shall utilize insulated throats.

14. *Fittings.* With respect to section 300.4(G) of the national electrical code, 2020 edition, all connections which use the EMT conduit, flexible metallic tubing, sealtight metallic conduit, et cetera, shall utilize insulated throats.

15. *Conductors.* In lieu of the requirements of section 310.3 of the national electrical code, 2020 edition,

conductors, whether solid or stranded, shall be no smaller than number twelve copper or number ten aluminum or copper-clad aluminum except for the following:

*a.* Flexible cords as permitted by section 400.12 of the national electrical code, 2020 edition.

*b.* Fixture wire as permitted by section 402.6 of the national electrical code, 2020 edition.

*c.* Fractional horsepower motors as permitted by section 430.22(F) of the national electrical code, 2020 edition.

*d.* Cranes and hoists as permitted by section 610.14 of the national electrical code, 2020 edition.

*e.* Elevator control and signaling circuits as permitted by section 620.12 of the national electrical code, 2020 edition.

*f.* Class one, two, and three circuits as permitted by sections 725.27(A) or 725.82(B) of the national electrical code, 2020 edition.

*g.* Fire-protective signaling circuits as permitted by section 760.27(A) or 760.82(B), or the exception to section 760.51 of the national electrical code, 2020 edition.

*h.* For type V cables, minimum conductor sizes are as follows:

(1) Number twelve for one thousand two hundred volt rating.

(2) Number ten for three thousand volt rating.

(3) Number eight for four thousand volt rating.

*i.* Motor control circuits as permitted by section 430.72 of the national electrical code, 2020 edition.

*j.* Control and instrumentation circuits as permitted by section 727.6 of the national electrical code, 2020 edition.

*k.* Electric signs and outline lighting as permitted in sections 600.31(B) and 600.32(B) of the national electrical code, 2020 edition.

*l.* Smoke detector circuits in all occupancies, which may use number fourteen wire.

16. *Permitted uses for nonmetallic-sheathed cable.* With respect to the requirements of section 334.10 of the national

electrical code, 2020 edition, all feeder and subfeeder wiring in commercial, industrial, public, and apartment buildings and single-family and multifamily dwellings shall be installed in either rigid metal conduit, electrical metallic tubing, or polyvinyl chloride, or in special cases as determined by the inspector.

17. *Exposed work in unfinished basements and crawl spaces.* With respect to section 334.15(C) of the national electrical code, 2020 edition, all basement wiring from floor level to the underside of the floor joist must be installed in a conduit, either rigid or thin wall. Eighteen inches of nonmetallic cable in basements are permitted where receptacles are fed from basement junction boxes. Finished rooms in the basement may be wired in the type of wiring used throughout the house providing it is concealed before occupancy and final inspection. All exposed wires in garages and outbuildings shall be installed in conduit. Such conduit shall be parallel with walls and ceiling.

18. *Switches and circuit breakers.* With respect to section 404.8(A) of the national electrical code, 2020 edition, switches and circuit breakers used as switches installed outdoors shall be installed no lower than thirty inches from the floor or finished grade, measured from the bottom of the panel, and include service panels and meter bases.

19. *Replacement of receptacles.* In lieu of the requirements of the first sentence of section 406.4(D)(4) of the national electrical code, 2020 edition, where a receptacle outlet is located in any areas specified in section 210.12(B) of the national electrical code, 2020 edition, a replacement receptacle at this outlet shall be one listed in section 406.4(D)(4) of the national electrical code, 2020 edition.

20. *Receptacles in damp or wet locations.* In lieu of the requirements in the first sentence of section 406.9(C) of the national electrical code, 2020 edition, receptacles shall not be installed directly over a bathtub or shower.

21. *Optional standby systems.* With respect to the requirements of article 702 of the national electrical code, 2020 edition, fixed and portable emergency standby generators shall not be installed or operated in front or side yards in residential districts or in other districts adjacent to a residential district. However, the building official may allow the use and installation of emergency standby generators in side yards when installation is not feasible in the required rear yard and the property owner takes reasonable steps to buffer the noise created by the unit through vegetation, enclosure of the generator, adding additional mufflers, or other means. The determination of acceptable buffering is at the sole discretion of the building official.

Sec. 3. Section 103.6, subsection 1, paragraph a, Code 2023, is amended by striking the paragraph.

Sec. 4. Section 103.6, subsection 2, Code 2023, is amended to read as follows:

2. The board may, in its discretion, revoke, suspend, or refuse to renew any license granted pursuant to this chapter when the licensee violates any provision of the national electrical code ~~as adopted pursuant to subsection 1~~, this chapter, or any rule adopted pursuant to this chapter.

Sec. 5. Section 103.10, subsection 2, Code 2023, is amended to read as follows:

2. In addition, an applicant shall meet examination criteria based upon the ~~most recent~~ national electrical code ~~adopted pursuant to section 103.6~~ and upon electrical theory, as determined by the board.

Sec. 6. Section 103.12, subsection 2, Code 2023, is amended to read as follows:

2. In addition, an applicant shall meet examination criteria based upon the ~~most recent~~ national electrical code ~~adopted pursuant to section 103.6~~ and upon electrical theory, as determined by the board.

Sec. 7. Section 103.18, Code 2023, is amended to read as

follows:

**103.18 License renewal — continuing education.**

In order to renew a class A master electrician, class B master electrician, class A journeyman electrician, or class B journeyman electrician license issued pursuant to this chapter, the licensee shall be required to complete eighteen contact hours of continuing education courses approved by the board during the three-year period for which a license is granted. The contact hours shall include a minimum of six contact hours studying the national electrical code ~~described in section 103.6~~, and the remaining contact hours may include study of electrical circuit theory, blueprint reading, transformer and motor theory, electrical circuits and devices, control systems, programmable controllers, and microcomputers or any other study of electrical-related material that is approved by the board. Any additional hours studying the national electrical code shall be acceptable. For purposes of this section, "*contact hour*" means fifty minutes of classroom attendance at an approved course under a qualified instructor approved by the board.

Sec. 8. Section 103.26, Code 2023, is amended to read as follows:

**103.26 Condemnation — disconnection — opportunity to correct noncompliance.**

If the inspector finds that any installation or portion of an installation is not in compliance with accepted standards of construction for health safety and property safety, based upon minimum standards set forth in the local electrical code or the national electrical code ~~adopted by the board pursuant to section 103.6~~, the inspector shall by written order condemn the installation or noncomplying portion or order service to such installation disconnected and shall send a copy of such order to the board, the state fire marshal, and the electrical utility supplying power involved. If the installation or the noncomplying portion is such as to seriously and proximately endanger human health or property, the order of the inspector

when approved by the inspector's supervisor shall require immediate condemnation and disconnection by the applicant. In all other cases, the order of the inspector shall establish a reasonable period of time for the installation to be brought into compliance with accepted standards of construction for health safety and property safety prior to the effective date established in such order for condemnation or disconnection.

Sec. 9. Section 103.29, subsection 5, Code 2023, is amended to read as follows:

5. A political subdivision that performs electrical inspections shall act as the authority having jurisdiction for electrical inspections and for amending the national electrical code ~~adopted by the board pursuant to section 103.6~~ for work performed within the jurisdictional limits of the political subdivision, provided those inspections and amendments conform to the requirements of this chapter. Any action by a political subdivision with respect to amendments to the national electrical code shall be filed with the board prior to enforcement by the political subdivision, and shall not be less stringent than the minimum standards established by the board by rule.

Sec. 10. Section 103.31, subsections 3 and 4, Code 2023, are amended to read as follows:

3. State inspection procedures and policies shall be established by the board. The state fire marshal, or the state fire marshal's designee, shall enforce the procedures and policies, and enforce the provisions of the national electrical code ~~adopted by the board~~.

4. Except when an inspection reveals that an installation or portion of an installation is not in compliance with accepted standards of construction for health safety and property safety, based upon minimum standards set forth in the local electrical code or the national electrical code ~~adopted by the board pursuant to section 103.6~~, such that an order of condemnation or disconnection is warranted pursuant to section

103.26, an inspector shall not add to, modify, or amend a construction plan as originally approved by the state fire marshal or the state building code commissioner in the course of conducting an inspection.

EXPLANATION

**The inclusion of this explanation does not constitute agreement with the explanation's substance by the members of the general assembly.**

This bill relates to the state electrical code. The bill adopts certain provisions of the national electrical code, 2020 edition, with amendments, as the state electrical code. The bill strikes the ability of the national electrical examining board to adopt and amend a version of the national electrical code. The bill also makes conforming changes.