ELECTRICITY

§ 150.201 ELECTRICAL CODE ADOPTED.

(a) The *National Electrical Code*, 2020 edition (NFPA 70-2020), published by the National Fire Protection Association, and amendments and additions thereto, is hereby adopted by the city to regulate the design and construction, quality of materials, erection, installation, alteration, repair, location, relocation, replacement, addition to, use, or maintenance for all electrical systems and installations in the city of Sioux Falls.

(b) The adoption of the *National Electrical Code*, 2020 edition, will become effective October 1, 2020. The minimum electrical standards in the 2020 edition of the *National Electrical Code* and amendments, additions, and deletions thereto shall be applied to any building permit issued on October 1, 2020, and thereafter.

(c) A printed copy of the code shall be filed with the city clerk.

Commentary—City: To be consistent with the South Dakota State Electrical Commission, this section of City ordinance adopts the world's most widely adopted and most up-to-date electrical code, the 2020 National Electrical Code (NEC). The NEC is promulgated and published by the National Fire Protection Association, an international codes and standards organization. The NEC, which is revised and published during a three-year code cycle, establishes minimum standards for the installation of all facets of electrical systems and features the latest and most technological advancement in industry standards to safeguard the public health and safety for electrical design and construction.

§ 150.201.1 AMENDMENTS, ADDITIONS, AND DELETIONS TO THE 2020 *NATIONAL ELECTRICAL CODE*.

The following articles and subsections of the *National Electrical Code*, 2020 edition, shall be amended, added, or not adopted by the city as follows. All other sections or subsections of the *National Electrical Code*, 2020 edition, as published, shall remain the same.

ARTICLE 100 Definitions. Part 1. Definitions. Equipment. A general term, including fittings, devices, appliances, luminaires, apparatus, ~~machinery,~~ and the like used as a part of, or in connection with, an electrical installation.

Commentary—State: The State Electrical Commission removed "machinery" to eliminate the listing requirements for industrial machinery, which is otherwise covered under Article 670 of the NEC. This provision is carried over from the 2017 NEC.

ARTICLE 100. Definitions. Part 1. Definitions. Kitchen. An area with a sink and permanent provisions for food preparation and cooking. A fixed or portable single microwave does not constitute a permanent cooking facility.

Commentary—City: This local modification continues to clarify that a single microwave in a room does not mandate that the room be provided with ground fault circuit interrupters, which are otherwise required in a kitchen. This provision is carried over from the 2017 NEC.

ARTICLE 100 Definitions. Strict Liability Offense. An offense in which the prosecution in a legal proceeding is not required to prove criminal intent as a part of its case. It is enough to prove that the defendant either did an act which was prohibited, or failed to do an act which the defendant was legally required to do.

Commentary—City: This term brings the code in line with the current legal terminology used in other codes regarding the prosecution of violations. With this term, the prosecutor is not required to prove that code violations were intended by a defendant or were even due to negligence. It is difficult to prove such intentions or negligence in a court of law. This provision is carried over from the 2017 NEC.

110.2 Approval. The conductors and equipment required or permitted by this *Code* shall be acceptable only if approved.

The local electrical inspector shall enforce all rules and specifications in this article as necessary to determine conformity of electrical materials, devices, or appliances with approved methods of construction in order to protect life and property. The label of a nationally recognized electrical testing laboratory, inspection agency, or other organization concerned with product evaluation that maintains periodic inspection during production of equipment or materials, whose label indicates compliance with nationally recognized standards or tests to determine suitable usage in a specified manner, is prima facie evidence that the electrical materials, devices, or appliances are conforming and listed for installation under the provisions of this article.

Only those materials, devices, or appliances which are approved for the purpose intended may be installed to use electricity for light, heat, or power. This includes all materials used to install the materials, devices, or appliances. The manufacturer's name, trademark, or other identification symbol must be placed on or provided with the materials, devices, or appliances, together with rated voltage, current, wattage, or other applicable ratings necessary to determine the purpose and use for which they are intended in accordance with Article 670. It is not the local electrical inspector's responsibility to enforce nationally recognized testing laboratory listings on equipment.

> **Exception:** Machinery that is reviewed and approved per the machinery policy as adopted by the South Dakota Electrical Commission.
>
> *Informational Note:* See 90.7, Examination of Equipment for Safety, and 110.3, Examination, Identification, Installation, and Use of Equipment. See definitions of *Approved, Identified, Labeled,* and *Listed*.

Commentary—State: These additions to Article 110.2 continue to eliminate the liability of the electrical inspector to accept the termination of industrial machinery which is not listed by a National Recognized Testing Laboratory (NRTL); as long as the industrial machinery is in conformance with Article 670, Industrial Machinery, NEC, which was determined by the State

Electrical Commission. Article 670 calls for nameplate designations. The exception was added this code cycle to give the electrical contractor another option to approving machinery that is not listed and labeled. This provision is carried over from the 2017 NEC.

110.3 Examination, Identification, Installation, Use, and Listing (Product Certification) of Equipment.

(A) Examination. In judging equipment, considerations such as the following shall be evaluated:

(1) Suitability for installation and use in conformity with this *Code*.

Informational Note No. 1: Equipment may be new, reconditioned, refurbished, or remanufactured.

Informational Note No. 2: Suitability of equipment use may be identified by a description marked on or provided with a product to identify the suitability of the product for a specific purpose, environment, or application. Special conditions of use or other limitations and other pertinent information may be marked on the equipment, included in the product instructions, or included in the appropriate listing and labeling information. Suitability of equipment may be evidenced by listing or labeling.

(2) Mechanical strength and durability, including, for parts designed to enclose and protect other equipment, the adequacy of the protection thus provided.

(3) Wire bending and connection space.

(4) Electrical insulation.

(5) Heating effects under normal conditions of use and also under abnormal conditions likely to arise in service.

(6) Arcing effects.

(7) Classification by type, size, voltage, current capacity, and specific use.

(8) Other factors that contribute to the practical safeguarding of persons using or likely to come in contact with the equipment.

The local electrical inspector may grant special approval of materials, devices, or appliances if no standard has been prepared or adopted to which they should conform. Special approval applies only to the particular sample approved and not to the line as manufactured, stored, sold, installed, or attached and may be granted only for those materials, devices, or appliances which, in the opinion of the local electrical inspector, are safe for the use intended. The details of decisions made by the electrical inspector shall be recorded and entered into the files of the electrical inspection division. Any decisions made by the local electrical inspector may be reviewed for consideration by the electrical board of appeals and examiners. The city does not

assume any liability for damage or injury to persons or property because of the use of those materials, devices, or appliances.

Commentary—State: This continues to maintain the State provisions which allow the Electrical Inspector to grant special approval for equipment that is not provided with an NRTL standard. This provision is carried over from the 2017 NEC.

110.26 Spaces About Electrical Equipment. (1) Depth of Working Space. The depth of the working space in the direction of live parts shall not be less than that specified in Table 110.26(A)(1) unless the requirements of 110.26(A)(1)(a), (A)(1)(b), or (A)(1)(c) are met. Distances shall be measured from the exposed live parts or from the enclosure or opening if the live parts are enclosed.

In new structures, additional working space for switchboards, panelboards, switchgear, and motor control centers operating at 600 volts, nominal or less to ground, shall extend up 2 feet above the required working space from the front face of the switchboard, panelboards, switchgear, and motor control centers. This applies only to equipment not part of the electrical installation. Building construction materials shall be allowed in the 2-foot area.

Table 110.26(A)(1) Working Spaces

Nominal Voltage to Ground	Minimum Clear Distance		
	Condition 1	Condition 2	Condition 3
0–150	914 mm (3 ft)	914 mm (3 ft)	914 mm (3 ft)
151–600	914 mm (3 ft)	1.0668 m (3 ft 6 in)	1.22 m (4 ft)
600–1000	914 mm (3 ft)	1.22 m (4 ft)	1.524 m (5 ft)

Note: Where the conditions are as follows:

Condition 1—Exposed live parts on one side of the working space and no live or grounded parts on the other side of the working space, or exposed live parts on both sides of the working space that are effectively guarded by insulating materials.

Condition 2—Exposed live parts on one side of the working space and grounded parts on the other side of the working space. Concrete, brick, or tile walls shall be considered as grounded.

Condition 3—Exposed live parts on both sides of the working space.

(a) *Dead-Front Assemblies.* Working space shall not be required in the back or sides of assemblies, such as dead-front switchboards, switchgear, or motor control centers, where all connections and all renewable or adjustable parts, such as fuses or switches, are accessible

from locations other than the back or sides. Where rear access is required to work on nonelectrical parts on the back of enclosed equipment, a minimum horizontal working space of 762 mm (30 in) shall be provided.

(b) *Low Voltage.* By special permission, smaller working spaces shall be permitted where all exposed live parts operate at not greater than 30 volts rms, 42 volts peak, or 60 volts dc.

(c) *Existing Buildings.* In existing buildings where electrical equipment is being replaced, Condition 2 working clearance shall be permitted between dead-front switchboards, switchgear, panelboards, or motor control centers located across the aisle from each other where conditions of maintenance and supervision ensure that written procedures have been adopted to prohibit equipment on both sides of the aisle from being open at the same time and qualified persons who are authorized will service the installation.

Commentary—State: This maintains the required height of the working space in front of serviceable electrical equipment such as, but not exclusive to, VFDs, control cabinets, fusible disconnects, transformers, and switchgear. This provision is carried over from the 2017 NEC.

110.27 Guarding of Live Parts. (D) Electric Fences. Electric fencing is not allowed to be installed in the city except as approved by the electrical board of appeals and examiners.

Commentary—City: This maintains the elimination of electric fences within the city of Sioux Falls, except as otherwise approved by the Electrical Board of Appeals and Examiners. This provision is carried over from the 2017 NEC.

210.8(A) Dwelling Units.

All 125-volt ~~through 250-volt~~ receptacles installed in the locations specified in 210.8(A)(1) through (A)(11) and supplied by single-phase branch circuits rated 150 volts or less to ground shall have ground- fault circuit- interrupter protection for personnel.

(1) Bathrooms.

(2) Garages and also accessory buildings that have a floor located at or below grade level not intended as habitable rooms and limited to storage areas, work areas, and areas of similar use.

(3) Outdoors.

Exception to (3): Receptacles that are not readily accessible and are supplied by a branch circuit dedicated to electric snow-melting, deicing, or pipeline and vessel heating equipment shall be permitted to be installed in accordance with 426.28 or 427.22, as applicable.

(4) Crawl spaces—at or below grade level.

(5) Basements.

Exception to (5): A receptacle supplying only a permanently installed fire alarm or burglar alarm system shall not be required to have ground- fault circuit- interrupter protection.

Informational Note: See 760.41(B) and 760.121(B) for power supply requirements for fire alarm systems.

Receptacles installed under the exception to 210.8(A)(5) shall not be considered as meeting the requirements of 210.52(G).

(6) Kitchens—where the receptacles are installed to serve the countertop surfaces.

(7) Sinks—where receptacles are installed within 1.8 m (6 ft) from the top inside edge of the bowl of the sink.

(8) Boathouses.

(9) Bathtubs or shower stalls—where receptacles are installed within 1.8 m (6 ft) of the outside edge of the bathtub or shower stall.

(10) Laundry areas—where receptacles are installed within 3.0 m (10 ft) of the laundry box or water supply laundry hookups.

Exception to (1) through (3), (5) through (8), and (10): Listed locking support and mounting receptacles utilized in combination with compatible attachment fittings installed for the purpose of serving a ceiling luminaire or ceiling fan shall not be required to be ground- fault circuit- interrupter protected. If a general- purpose convenience receptacle is integral to the ceiling luminaire or ceiling fan, GFCI protection shall be provided.

(11) Indoor damp and wet locations.

Commentary—City: This was installed to clarify the GFI requirement on (10) Laundry areas where laundry is not installed in a dedicated laundry room.

~~**210.8(F) Outdoor Outlets.**~~

~~All outdoor outlets for dwellings, other than those covered in 210.8(A)(3), Exception to (3), that are supplied by single-phase branch circuits rated 150 volts to ground or less, 50 amperes or less, shall have ground-fault circuit-interrupter protection for personnel.~~

Commentary—State: This provision was removed at the state level.

210.52 Dwelling Unit Receptacle Outlets. (C) Countertops and Work Surfaces. 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) and shall not be considered as the receptacle outlets required by 210.52(A).

For the purposes of this section, where using multioutlet assemblies, each 300 mm (12 in.) of multioutlet assembly containing two or more receptacles installed in individual or continuous lengths shall be considered to be one receptacle outlet. Wall counter space receptacle outlet requirements shall apply to island and peninsula counter spaces provided with backsplash and permanent vertical wall components.

(1) **Wall Spaces.** Receptacle outlets shall be installed so that no point along the wall line is more than 600 mm (24 in.) measured horizontally from a receptacle outlet in that space.

Exception: Receptacle outlets shall not be required directly behind a range, counter-mounted cooking unit, or sink in the installation described in Figure 210.52.

Commentary—City: The Wall Spaces maintains the local clarification to wall countertop spaces to require receptacles on an island or peninsula counter space that is configured with a backsplash and/or a vertical wall component. This provision is carried over from the 2017 NEC.

210.52 Dwelling Unit Receptacle Outlets. (J.) Water softening equipment. In one- and two-family dwellings and town houses, a receptacle outlet shall be installed within 3 feet of the water softener loop or 3 feet of the water heater if no loop exists for water softening equipment.

Commentary—City: This maintains the requirement to install a receptacle to accommodate the future installation of a water softener. This provision has added the requirement of a receptacle to be located within 3 feet of the water softener loop or 3 feet of the water heater if no loop exists.

210.52 Dwelling Unit Receptacle Outlets. (K.) Sump pit. In one- and two-family dwellings and town houses, a GFI-protected receptacle outlet shall be installed within 3 feet of the sump pit on an individual circuit.

Commentary—City: This maintains the requirement to ensure that a sump pump is on an individual circuit to ensure that any other item on the circuit does not trip the breaker when the sump needs to run. The GFI requirement was added this year for safety. This provision is carried over from the 2017 NEC.

210.52 Dwelling Unit Receptacle Outlets. (L) Gas Ranges. In one- and two-family dwellings and town houses, a receptacle outlet shall be installed within 3 feet of the gas range on an individual circuit.

Commentary—City: This maintains the requirement to ensure that a gas range has sufficient ampacity and is on an individual circuit to ensure that the circuit is not tripped when operating the gas range. This provision is carried over from the 2017 NEC.

230.28 Service Masts as Supports. Only power service- drop or overhead service conductors shall be permitted to be attached to a service mast. Service masts used for the support of service-drop or overhead service conductors shall be installed in accordance with 230.28(A) and (B).

(A) **Strength.** The service mast shall be of adequate strength or be supported by braces or guy wires to withstand safely the strain imposed by the service- drop or overhead service conductors. Hubs intended for use with a conduit that serves as a service mast shall be identified for use with service- entrance equipment.

To gain height, a perpendicular mast shall be installed for the support of service drops to low buildings. This mast must be installed according to the following requirements:

(1) If conduit is used, it must be not less than 2-inch trade-size galvanized, rigid conduit, or intermediate metal conduit.

(2) If a wood mast is used, it must be not smaller in cross section than 4 inches by 6 inches.

(3) If the mast extends more than 48 inches above its last support, the mast must be at least 96 inches long, attached to the structure at a minimum of two locations, and guyed with 1/4-inch-minimum guy strand or equivalent, or braced with guy fittings and approved according to Article 90.4 of the *National Electrical Code*.

(4) If the mast extends more than 72 inches above its last support, the mast must be at least 120 inches long, attached to the structure at a minimum of three locations, and guyed with fittings in two directions to provide support.

(5) Only the power company's service drop conductors shall be attached to a service mast. Phone loops, cable TV conduits, grounding clamps, and the like shall not be attached to the service mast. Conduit couplings shall not be installed above the roofline.

(B) **Attachment.** Service- drop or overhead service conductors shall not be attached to a service mast between a weather-head or the end of the conduit and a coupling, where the coupling is located above the last point of securement to the building or other structure or is located above the building or other structure.

Commentary—City: This maintains a local amendment to meet the requirement of local power suppliers for service masts. This provision is carried over from the 2017 NEC.

~~**230.67 Surge Protection.**~~

~~**230.67(A) Surge Protective Device.**~~
~~All services supplying dwelling units shall be provided with a surge protective device (SPD).~~

~~**230.67(B) Location.**~~
~~The SPD shall be an integral part of the service equipment or shall be located immediately adjacent thereto.~~

~~*Exception: The SPD shall not be required to be located in the service equipment as required in (B) if located at each next level distribution equipment downstream toward the load.*~~

~~**230.67(C) Type.**~~
~~The SPD shall be a Type 1 or Type 2 SPD.~~

~~**230.67(D) Replacement.**~~
~~Where service equipment is replaced, all of the requirements of this section shall apply.~~

Commentary—State: This provision was removed at the state level.

230.91 Location. The service overcurrent device shall be an integral part of the service disconnecting means or shall be located immediately adjacent thereto. Where fuses are used as the service overcurrent device, the disconnecting means shall be located ahead of the supply side of the fuses.

The raceway containing conductors to the service entrance disconnect enclosure may not extend more than 5 feet inside the structure, except with the written permission of the state electrical or local electrical inspector. The raceway or cable assembly may not extend more than 5 feet once inside the structure to the main disconnect. Metering enclosures and junction boxes are not included when determining these lengths. Additional lengths in the structure may be installed only with the prior written permission of the electrical inspector or approval of the electrical board of appeals and examiners.

Commentary—City: Maintains the local amendment to restrict the length of a nonfused service entrance conductor entering into a building. This provision is carried over from the 2017 NEC.

250.24 Grounding of Service-Supplied Alternating-Current Systems. (A) System Grounding Connections. (1) General. The grounding electrode conductor connection shall be made at any accessible point from the load end of the overhead service conductors, service drop, underground service conductors, or service lateral to, including the terminal or bus to which the grounded service conductor is connected at the service disconnecting means. All grounding electrode conductors of the system grounding connection must terminate on the neutral bus inside the service equipment unless they are inspected before the service is energized by the power supplier.

Informational Note: See definitions of *Service Conductors, Overhead; Service Conductors, Underground; Service Drop;* and *Service Lateral* in Article 100.

Commentary—State: Maintains a state rule for the location of grounding connections at the service, unless inspected prior to energizing. This provision is carried over from the 2017 NEC.

250.53 Grounding Electrode System Installation. (D) Metal Underground Water Pipe. (1) Continuity. Continuity of the grounding path or the bonding connection to interior piping shall not rely on water meters or filtering devices and similar equipment.

A bonding jumper size in accordance with Table 250.66 shall be installed between the hot and cold waterlines at the water heater and cold hard and soft lines even if the softener is not in place.

Commentary—City: Maintains a local amendment to require the bonding of hot and cold waterlines at the water heater and softener to provide for a continuous grounding path. This provision is carried over from the 2017 NEC.

300.5 Underground Installations. (D) Protection from Damage. Direct-buried conductors and cables shall be protected from damage in accordance with 300.5(D)(1) through (D)(4).

(1) **Emerging from Grade.** Direct-buried conductors and cables emerging from grade and specified in columns 1 and 4 of Table 300.5 shall be protected by enclosures or raceways extending from the minimum cover distance below grade required by 300.5(A) to a point at least 2.5 m (8 ft) above finished grade. In no case shall the protection be required to exceed 450 mm (18 in) below finished grade.

(2) **Conductors Entering Buildings.** Conductors entering a building shall be protected to the point of entrance.

(3) **Service Conductors.** Underground service conductors that are not encased in concrete and that are buried 450 mm (18 in) or more below grade shall have their location identified by a warning ribbon that is placed in the trench at least 300 mm (12 in) above the underground installation.

(4) **Enclosure or Raceway Damage.** Where the enclosure or raceway is subject to physical damage, the conductors shall be installed in electrical metallic tubing, rigid metal conduit, intermediate metal conduit, RTRC-XW, Schedule 80 PVC conduit, or equivalent.

(5) **Underground Conductors to Comply with Installation Requirements.** All underground conductor installations, in addition to complying with the requirements of the *National Electrical Code*, laws of the state of South Dakota, and the state electrical commission shall comply with the requirement that direct burial underground service conductors or feeders shall be installed in a raceway from the building to a point beyond any concrete or asphalt slabs, stoops, footings, or driveways, which may interfere with future conductor replacement.

Commentary—State: Maintains the state rule for the installation of exterior conduit below concrete. This provision is carried over from the 2017 NEC.

300.13 Mechanical and Electrical Continuity—Conductors. (B) Device Removal. ~~In multiwire branch circuits, the~~The continuity of a grounded conductor shall not depend on device connections such as lampholders, receptacles, and so forth, where the removal of such devices would interrupt the continuity.

Commentary—City: Maintains local amendment requiring pigtails for all devices. This provision is carried over from the 2017 NEC.

310.10 Uses Permitted. (C) Wet Locations. Insulated conductors and cables used in wet locations shall comply with one of the following:

(1) Be moisture-impervious metal-sheathed.

(2) Be types MTW, RHW, RHW-2, TW, THW, THW-2, THHW, THWN, THWN-2, XHHW, XHHW-2, XHWN, XHWN-2, or ZW.

(3) Be of a type listed for use in wet locations.

For the installation of cables that are not approved for a wet location, the structure must meet the following:

(1) Must maintain a minimum of 20 degrees Fahrenheit temperature in building.

(2) Must have a weatherproofed roof.

(3) Must be totally enclosed.

Exception. Areas located outside of an area measured from the top and sides of an opening at a 1 to 1 ratio.

Commentary—City: This mandates that the use of wiring systems that are not approved for a wet location must be located in a structure that has a weatherproofed roof and that a minimum of 20 degrees F must be maintained to eliminate the exposure to rain, and to ensure that Romex and MC cables are not subject to cracking due to temperature. In addition, it gives the specific areas wires not rated for weather exposure that can be installed in reference to an opening prior to the opening being enclosed. This provision is carried over from the 2017 NEC.

334.30 Securing and Supporting. Nonmetallic-sheathed cable shall be supported and secured by nonconductive insulated staples, cable ties listed and identified for securement and support, or straps, hangers, or similar fittings designed and installed so as not to damage the cable, at intervals not exceeding 1.4 m (4 1/2 ft) and within 300 mm (12 in.) of every cable entry into enclosures such as outlet boxes, junction boxes, cabinets, or fittings. The cable length between the cable entry and the closest cable support shall not exceed 450 mm (18 in.). Flat cables shall not be stapled on edge.

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

Commentary—City: This maintains the local amendment to ensure that if staples are used to support and secure nonmetallic-sheathed cable, that the staples are nonconductive. This provision is carried over from the 2017 NEC.

358.12 Uses Not Permitted. EMT shall not be used under the following conditions:

(1) Where subject to severe physical damage.

(2) For the support of luminaires or other equipment except conduit bodies no larger than the largest trade size of the tubing.

(3) Electrical metallic tubing may not be used in concrete below grade or in concrete slab or masonry in direct contact with earth nor embedded in earth or fill. The use of a vapor barrier has no effect on the requirements of this section.

Commentary—State: This maintains the state rule that electrical metallic tubing cannot be installed below a slab at grade level, due to the deterioration that occurs with the cabling. This provision is carried over from the 2017 NEC.

406.9 Receptacles in Damp or Wet Locations. (C) Bathtub and Shower Space. Receptacles shall not be installed within ~~a zone measured 900 mm (3 ft) horizontally and 2.5 m (8 ft) vertically from the top of the bathtub rim or shower stall threshold. The identified zone is all-encompassing and shall include the space directly over the tub~~bathtub or shower stall.

Exception: In bathrooms with less than the required zone, the receptacle(s) shall be permitted to be installed opposite the bathtub rim or shower stall threshold on the farthest wall within the room.

Commentary—State: This provision was changed at the state level to remain the same as the 2017 NEC.

408.36 Overcurrent Protection. In addition to the requirement of 408.30, a panelboard shall be protected by an overcurrent protective device having a rating not greater than that of the panelboard. This overcurrent protective device shall be located within or at any point on the supply side of the panelboard. Installation of 120-volt plug-in circuit breakers in three-phase, four-wire panelboard on a delta system is prohibited.

Exception No. 1: Individual protection shall not be required for a panelboard protected by two main circuit breakers or two sets of fuses in other than service equipment, having a combined rating not greater than that of the panelboard. A panelboard constructed or wired under this exception shall not contain more than 42 overcurrent devices. For the purposes of determining the maximum of 42 overcurrent devices, a 2-pole or a 3-pole circuit breaker shall be considered as two or three overcurrent devices, respectively.

Exception No. 2: For existing panelboards, individual protection shall not be required for a panelboard used as service equipment for an individual residential occupancy.

Commentary—City: Maintains a local amendment to eliminate the accidental connection of 120-volt circuits to a higher voltage phase that is a carryover from the provisions of the 2017 NEC.

410.117 Wiring. (B) Circuit Conductors. Except for end-to-end installation or prefabricated flexible systems, ~~Branch~~branch- circuit conductors that have an insulation suitable for the temperature encountered shall be permitted to terminate in the luminaire.

Commentary—City: Maintains a local requirement to ensure that fixtures are not used as a raceway. This provision is carried over from the 2017 NEC.

422.12 Central Heating Equipment. Central heating equipment other than fixed electric space-heating equipment shall be supplied by an individual branch circuit and a disconnect shall be provided in sight and within 6 feet of the unit.

Exception No. 1: Auxiliary equipment, such as a pump, valve, humidifier, or electrostatic air cleaner directly associated with the heating equipment, shall be permitted to be connected to the same branch circuit.

Exception No. 2: Permanently connected air-conditioning equipment shall be permitted to be connected to the same branch circuit.

Commentary—State: Maintains a state rule to require a disconnect at an appliance for safety during servicing. This provision is carried over from the 2017 NEC.

517.13 Equipment Grounding Conductor for Receptacles and Fixed Electrical Equipment in Patient Care Spaces. (B) Insulated Equipment Grounding Conductors and Insulated Equipment Bonding Jumpers. (1) General. ~~The following shall be directly connected to an insulated copper equipment grounding conductor that is clearly identified along its entire length by green insulation and installed with the branch circuit conductors in the wiring methods as provided in 517.13(A):~~All receptacles installed in a patient care area shall be listed "Hospital Grade" and shall be so identified and the identification shall be visible after installation. The following shall be directly connected to an insulated copper equipment grounding conductor that is clearly identified along its entire length by green insulation and installed with the branch circuit conductors in the wiring methods as provided in 517.13(A):

(1) The grounding terminals of all receptacles other than isolated ground receptacles.

(2) Metal outlet boxes, metal device boxes, or metal enclosures.

(3) All non-current-carrying conductive surfaces of fixed electrical equipment likely to become energized that are subject to personal contact, operating at over 100 volts.

(4) Metal faceplates, by means of a metal mounting screw(s) securing the faceplate to a metal yoke or strap of a receptacle or to a metal outlet box.

Exception No. 1: For other than isolated ground receptacles, an insulated equipment bonding jumper that directly connects to the equipment grounding conductor is permitted to connect the box and receptacle(s) to the equipment grounding conductor. Isolated ground receptacles shall be connected in accordance with 517.16.

Exception No. 2: Luminaires more than 2.3 m (7 1/2 ft) above the floor and switches located outside of the patient care vicinity shall be permitted to be connected to an equipment grounding return path complying with 517.13(A) or (B).

Commentary—State: Maintains the state and local rule to require the use of hospital grade receptacles in patient care areas. Exception No. 2 was eliminated in the 2020 NEC. This provision is carried over from the 2017 NEC.

§ 150.202 TITLE.

This chapter, hereinafter also referred to as this code, shall be known as the "Sioux Falls electrical code," and may so be cited.

§ 150.203 PURPOSE.

The purpose of this code is to provide minimum standards to safeguard life, limb, health, property, and public welfare by regulating and controlling persons qualified to perform electrical work and the design, construction, installation, quality of materials, location, operation, and maintenance of electrical systems, apparatus, wiring, or equipment for electrical light, heat, power, fire alarms, and associate controls, within the jurisdictional limits of the city.

§ 150.204 SCOPE.

The provisions of this code shall apply to the installation, alteration, repair, relocation, replacement, addition to, use, or maintenance of any electrical system, apparatus, wiring, or equipment for electrical light, heat, power, fire alarms, and associate controls, within the jurisdictional limits of the city.

§ 150.205 NEW ELECTRICAL WORK.

All new electrical work shall be installed in conformance with this code and all relevant ordinances, laws, rules, and regulations of this city and the state.

§ 150.206 APPLICATION TO EXISTING ELECTRICAL SYSTEMS.

(a) *Additions, alterations, or repairs.*

(1) Additions, alterations, or repairs to any building, structure, or premises may be made to any electrical system or equipment without requiring the existing electrical system to comply with all the requirements of this code, provided the addition, alteration, or repair conforms to that required for a new electrical system or equipment. Additions, alterations, installations, or repairs shall not cause an existing system to become unsafe, create unhealthy or overloaded conditions, or shall not adversely affect the performance of the building as determined by the authority having jurisdiction. Electrical wiring added to an existing service, feeder, or branch circuit shall not result in an installation that violates the provisions of the code in effect at the time the additions are made.

(2) Provisions of the *International Existing Building Code* may apply to electrical modifications of buildings undergoing additions, alterations, repairs, and changes of occupancy.

(b) *New electrical service entrances in existing single-family and multiple-family dwellings.*

(1) When adding a new service entrance with increased amperage, the existing electrical system shall, at a minimum, comply with the following:

A. *Kitchens.* Each kitchen shall have a minimum of one 20-ampere circuit serving a countertop receptacle and a grounded receptacle serving a refrigerator.

B. *Overcurrent device location.* In multifamily dwellings, each occupant shall have access to his or her branch circuit overcurrent devices without going outdoors or through another occupancy.

C. *Habitable areas.* All habitable areas, other than closets, kitchens, basements, garages, hallways, laundry areas, utility areas, storage areas, and bathrooms, shall have minimum of two duplex receptacle outlets or one duplex receptacle outlet and one ceiling or wall-type lighting outlet.

D. *Minimum lighting outlets.* At least one lighting fixture shall be provided in every habitable room, bathroom, hallway, stairway, attached garage, and detached garage with electrical power, in utility rooms, and basements where the spaces are used for storage or contain equipment requiring service, and to illuminate outdoor entrances and exits. A switched receptacle is allowed in lieu of a lighting fixture in habitable rooms only.

E. *Ground fault circuit interrupters.* Ground fault circuit interrupter protection shall be provided for all receptacles in bathrooms, laundry, above kitchen counters, attached and detached garages provided with power, at readily accessible receptacles within 6 feet of sinks, basements, and at outdoor locations. The exceptions of the *National Electrical Code* §§ 210.8(A)3 and 5 shall apply.

F. *Laundries.* Each laundry shall be provided with at least one individual branch 20-ampere circuit.

G. *Heat sources.* The primary heat source shall be provided with an individual branch circuit.

H. *Exposed wiring methods.* All exposed wiring methods shall be installed in accordance with the applicable *National Electrical Code* article.

I. *Bathrooms.* Each bathroom shall have one receptacle outlet located within 3 feet of the basin. Any bathroom receptacle outlet shall have ground fault circuit interrupter protection.

J. *Emergency Disconnect.* An emergency disconnect shall be provided as required in Section 230.85 of the *National Electric Code* for one- and two-family dwelling units and townhomes.

(2) Minor additions, alterations, and repairs to existing electrical systems or equipment may be installed in accordance with the law in effect at the time the original installation was made, when approved by the electrical inspector.

(c) *Existing installations.* Electrical systems or equipment lawfully in existence at the time of the adoption of this code may have their use, maintenance, or repair continued if the use, maintenance, or repair is in accordance with the original design and location and no hazard to life, health, or property has been created by the electrical system.

(d) *Changes in building occupancy.* Electrical systems or equipment that are a part of any building or structure undergoing a change in occupancy, use, or character of use as defined in the building code, shall comply with all requirements of this code which may be applicable to the new occupancy, use, or character of use. Provisions of the *International Existing Building Code* may apply to buildings undergoing a change of occupancy.

(e) *Maintenance.* All electrical systems, equipment materials, and appurtenances, both existing and new, and all parts thereof shall be maintained in proper operating condition in accordance with the original design and in a safe and hazard-free condition. All devices or safeguards, which are required by this code, shall be maintained in conformance with the code edition under which installed. The owner or the owner's designated agent shall be responsible for maintenance of electrical systems and equipment. To determine compliance with this division (e), the building official may cause an electrical system or equipment to be reinspected.

(f) *Moved buildings.* Single, modular, or multifamily residential units moved from one location to another must have at least a 100-ampere service at the new location and must meet the ground fault circuit interrupter protection and arc fault circuit interrupter protection requirements of the *National Electrical Code*.

Commentary—City: With reference to (b)(1)(B) Overcurrent device locations, this clarifies that access to overcurrent devices is applicable to multifamily dwellings only. With reference to (b)(1)(D) Minimum lighting outlets, this gives the contractor another option to provide lighting in habitable rooms. With reference to (b)(1)(E) Ground fault circuit interrupters, this adds laundry to the list as to where GFCIs are required. These provisions are carried over from the 2017 NEC. With reference to (b)(1)(G), primary was added so that a garage heater is not required to be on its own circuit. With reference to (b)(1)(J), this was added as it is a new requirement in the 2020 NEC to provide emergency disconnects on new structures and the intent is to stay the same on retrofits.